EXHIBIT 1

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

U.S. Pat. No. 7,136,709 ("Arling") invalidates claims 22-27, 29, 31, 32, 38, 39, 41-43, 45, 62, 63, 65, 67, 73-75, 79, 82, 86-93, 97-100, , and/or 103-109 (the "Asserted Claims") of U.S. Patent No. 9,912,983 ("the '983 Patent"), either alone or in combination with the knowledge of one or ordinary skill in the art at the time of the alleged invention, applicant admitted prior art, and /or in combination with one or more references identified in Defendant's Invalidity Contentions. Arling was filed on November 1, 2004 and claims priority to a provisional application filed November 4, 2003. Arling issued on November 14, 2006. Arling therefore constitutes prior art under at least 102(a), 102(b) 102(e), and 103, as to the '983 Patent, alone, and/or in combination with the knowledge of one of ordinary skill in the art and/or one or more of the other prior art references referenced herein, as discussed in greater detail in the chart that follows. Plaintiff's asserted priority date/s of the '983 Patent is not later than August 10, 2006 and provisional application number 60/899,037 filed on February 2, 2007. By providing these Invalidity Contentions, Defendants do not agree that each asserted claim is entitled to one of those dates or to any other date earlier than the applicable effective filing date.

As discovery is ongoing, the contentions provided below are preliminary only and each Defendant reserves the right to supplement or modify these contentions in accordance with the Patent Local Rules, orders of the Court, or other applicable rules. Additionally, and in further consideration of the noted preliminary stages of the case, Defendant notes that the pinpoint citations referenced in this chart are not meant to be exhaustive and Defendant reserves the right to rely on additional citations within the reference. Furthermore, citations to any Figure, Table, or Chart are meant to encompass the language describing the respective Figure, Table, or Chart.

These charts also incorporate analysis based in part on Innovation Sciences, LLC's (Plaintiff's) infringement contentions to date. Nothing in Defendants' claim charts should be construed as an admission regarding infringement, either literally or under the doctrine of equivalents, or as an admission regarding Defendants' understanding of the proper scope of the Asserted Claims. Given the ambiguities in Plaintiff's infringement

contentions, the exemplary citations herein necessarily account for a variety of possible claim constructions. To the extent that these Invalidity Contentions rely on or otherwise employ particular constructions of terms or phrases in the Asserted Claims, Defendants do not suggest by providing these Contentions that any such constructions as proper constructions of those terms or phrases, nor do Defendants agree that such terms are supported by written description, have antecedent basis, or are not indefinite. Defendants' positions are based in part on Plaintiff's overly broad interpretation of its claims as evidenced by its infringement contentions, and do not necessarily reflect any Defendant's interpretation of the true and proper scope of Plaintiff's claims. Defendants reserve the right to propose claim construction positions that differ from how certain claim terms may be read in this document. Furthermore, the citations provided in these claim charts are merely intended to be exemplary in nature and not exhaustive of the disclosures of the limitation in the art. Defendant reserves the right to rely on additional citations or sources of evidence that also may be applicable, or that may become applicable in light of claim construction, amendments, if allowed, to Plaintiff's infringement contentions, and/or information obtained during discovery as the case progresses.

To the extent Plaintiff alleges that Arling does not disclose comprise any limitation recited in asserted claims of the '983 Patent, either expressly or inherently, it would have been obvious to use the methods and systems described in the references in combination with the other prior art identified in Defendant's invalidity contentions, and/or in view of the knowledge of one of ordinary skill in the art at the relevant time about such systems and services.

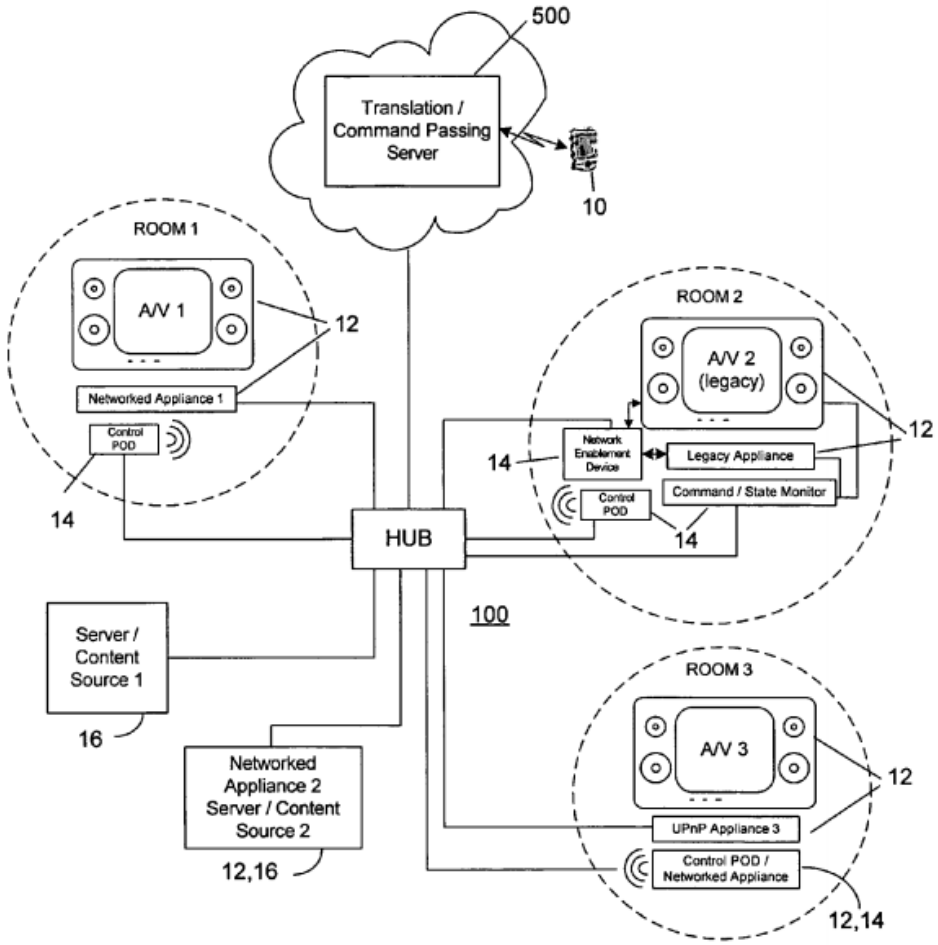
Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
22[pre]	22. A wireless HUB system for managing information communications comprising:	Arling discloses a wireless HUB system for managing information communications. For example: Generally, the system includes one or more wireless remote controls, a plurality of appliances (including network enabled appliances and traditional legacy appliances in the exemplary system), associated control centric devices (generally devices whose chief function is providing control based functions and services, including but not limited to control pods, control servers, device state monitors, etc.) and associated content centric devices (generally devices whose chief function is providing content based functions and services, including but not limited to content managers, content servers, content renderers, etc.). Arling at 1:57-1:67. The system envisaged by the current invention provides for both the interoperability of various network enabled and legacy home appliances, and advanced command and control functions for such appliances. To this end, the networked home control and automation system (shown generally in FIG. 1) includes one or more remote controls 10, a plurality of appliances 12 (including network enabled appliances and traditional legacy appliances in the exemplary system), associated control centric devices 14 (generally devices whose chief function, is providing control based functions and services, including, but not limited to, control pods, control servers, device state monitors, etc.) and associated content centric devices 16 (generally devices whose chief function is providing content based functions and services, including, but not limited to, content managers, content servers, content renderers, etc.). By way of example only, the appliances 12 may include, but are not limited to, televisions, VCRs, DVRs, DVD players, cable converter boxes, amplifiers, CD players, game consoles, home lighting, drapery, fans, HVAC systems, thermostats, personal computers, security systems, network enabled automobiles, etc. According to the exemplary system, some or all of the above devices, appliances, and components are configured to be network enabled and interoperable (e.g., as defined and described in the UPnP and/or HAVi specifications which can be found at the upnp.org Web site and the havi.org Web site respectively, which specifications are incorporated herein by reference in their entirety) such that basic device addressing, accessibility, monitoring, remote management, and other network communication based features are possible in a home control and automation environment. The networked home control and automation environment 100 itself may utilize well known centralized networking methods, ad hoc networking methods (including peer-to-peer networking), powerline or

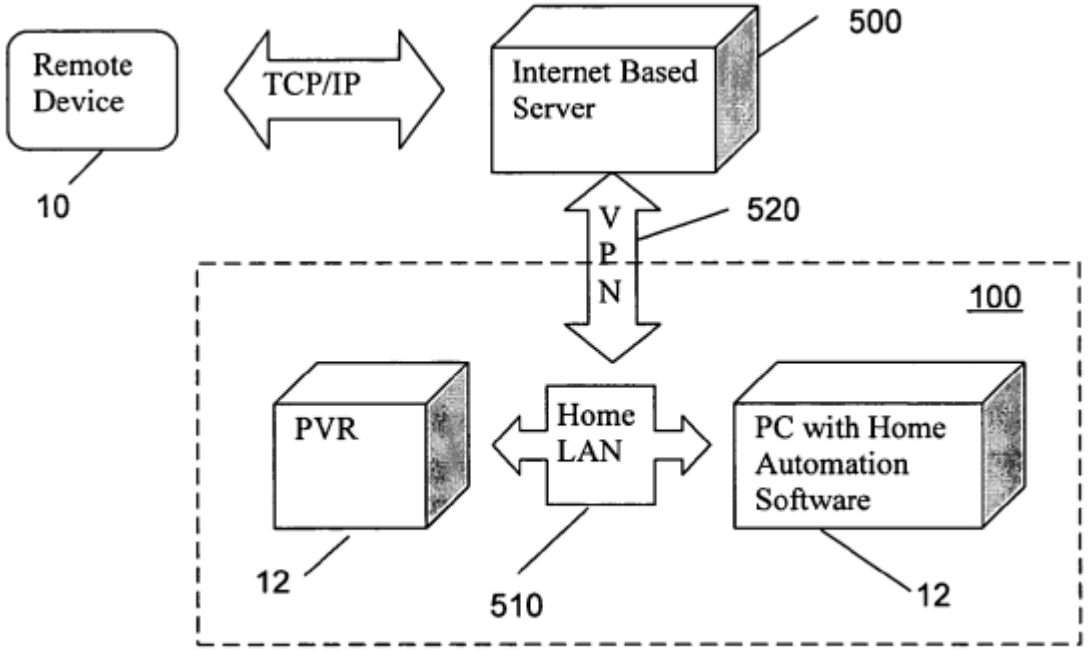
Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		phoneline based networking methods, or a combination of the above (whether wired or wireless) to accomplish the features and goals of the present invention. Additionally, it will be appreciated that particular appliances, devices, and components of the exemplary system may incorporate some or all of the features, functions, and capabilities of other individual devices such that a minimal number of separate physical devices are required in a given home environment to accomplish the goals of the current invention. For instance, devices such as a Media Center PC or network enabled TV (e.g., one compliant with the UpnP and/or HAVi specifications) may include, in additional to standard computing and/or audio/video playback functions, system wide control capabilities, content management and rendering abilities, and location based services. As such it will be appreciated that the various system elements defined and described herein should be considered as functional modules capable of implementation individually or collectively in a single physical device or a software module in a software product, or one or more elements may be implemented in separate physical devices or software modules, without departing from the scope and spirit of the present invention. Arling at 2:45-3:36. Remote control 10 may also include, as needed for a particular application, CCD or other imaging sensors, microphone, and/or touchscreen display for receipt of various types of user input for effecting operations of the remote control. Remote control 10 may also be configured to include appliance, control server, and content server functions, as will be described in greater detail below. For instance, remote control 10 may be implemented on a laptop computer, smart panel, tablet PC, wireless enabled PDA, mobile phone, etc which may all include programming to cause remote control 10 to playback music, videos, pictures and the like, monitor appliance feature and state tables for advanced control functions, and include programming for location determination methods. Remote control 10 may thus be viewed as a wireless appliance having functions similar to less portable appliances of the networked control environment, and as such the following discussions and descriptions of the remote controls, and controlling devices in general, should be taken in the broadest sense possible. Arling at 4:41-4:59.

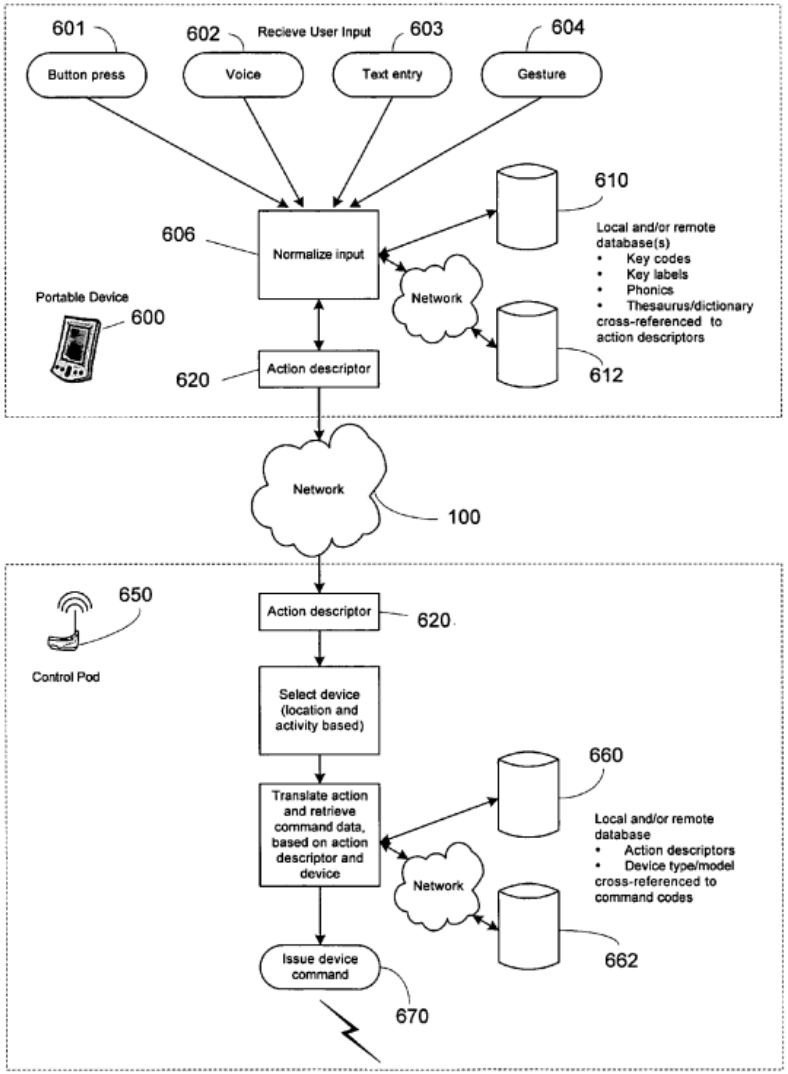
Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

		See also Fig. 1, Fig. 5, and Fig. 6:  FIGURE 1

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		 FIGURE 5

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		 FIGURE 6

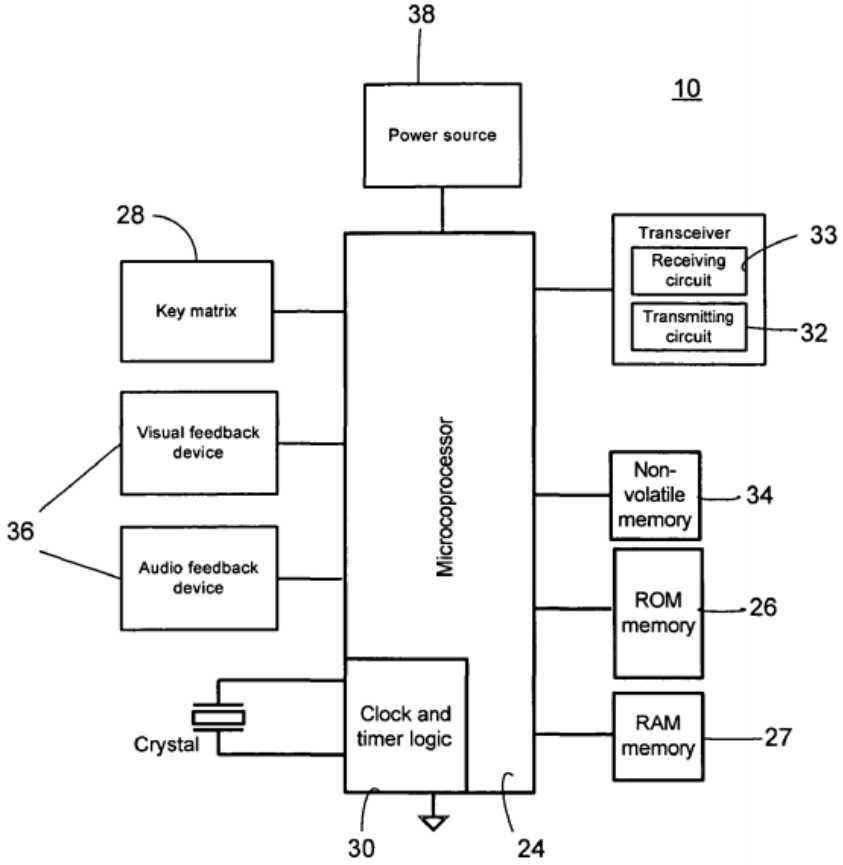
Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		To the extent the foregoing disclosure(s) in Arling do not expressly disclose this limitation, a person of ordinary skill in the art would have determined that Arling inherently included this limitation, or that the limitation would have been obvious in light of Arling alone or in combination with AAPA, the knowledge of one of ordinary skill in the art, or combinations with other references for at least the reasons stated pursuant to P.R. 3-3(b) in the cover pleading and/or in the claim charts. To the extent the foregoing disclosure(s) in Arling do not expressly disclose this limitation, a person of ordinary skill in the art would have determined that Arling inherently included this limitation, or that the limitation would have been obvious in light of Arling alone or in combination with AAPA, the knowledge of one of ordinary skill in the art, or combinations with other references for at least the reasons stated pursuant to P.R. 3-3(b) in the cover pleading and/or in the claim charts.
22[a]	an input interface configured to receive a wireless signal through a wireless communication network;	Arling discloses an input interface configured to receive a wireless signal through a wireless communication network. For example: > The networked home control and automation environment 100 itself may utilize well known centralized networking methods, ad hoc networking methods (including peer-to-peer networking), powerline or phoneline based networking methods, or a combination of the above (whether wired or wireless) to accomplish the features and goals of the present invention. Additionally, it will be appreciated that particular appliances, devices, and components of the exemplary system may incorporate some or all of the features, functions, and capabilities of other individual devices such that a minimal number of separate physical devices are required in a given home environment to accomplish the goals of the current invention. Arling at 3:9-3:23. > Looking now to FIG. 2, for use in transmitting command codes, generic commands, macro commands, etc. to one or more of the appliances (both network enabled and legacy) the remote control IO may include, as needed for a particular application, a processor 24 coupled to a memory device (such as ROM memory 26, RAM memory 27, and/or a non-volatile memory 34), a key matrix 28 (e.g., physical buttons, a touch screen display, or a combination thereof), an internal clock and timer 30, transmission circuit(s) 32, receiver circuit(s) 33, and/or transceiver circuit(s) (e.g., IR and/or RF), a means 36 to provide feedback to the user (e.g., LED, display, speaker, and/or the like), and a power supply 38 as generally illustrated in FIG. 2.

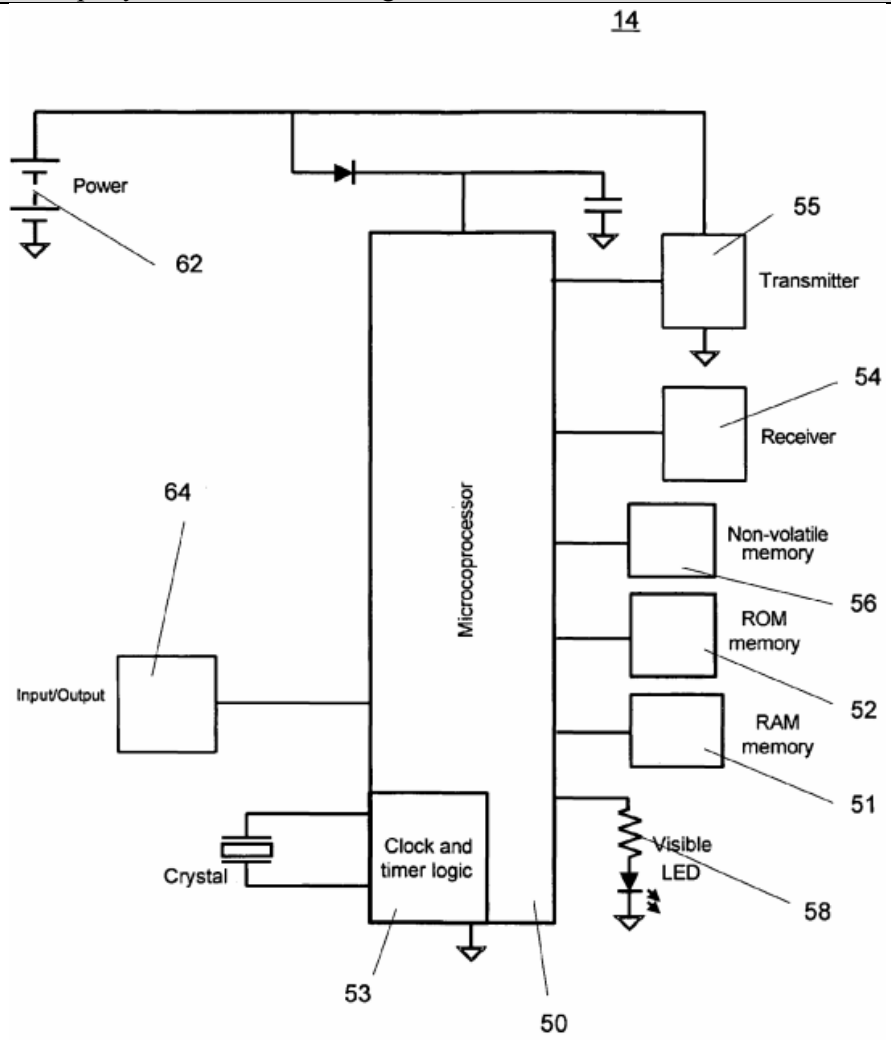
Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Arling at 3:36-3:49. As such the general control device as shown and described in FIG. 3 may be configured and modified as further described herein to function as a location signaling device, network enablement device, command/state monitor, control pod, network bridge (such as for example an IR, RF, X-10, or Simple Control Protocol (SCP) bridge), or any combination of the above. Arling at 6:14-6:20. In either case, the control device 14 may include, as needed for a particular application, a processor 50 coupled to a memory device (such as ROM memory 52, RAM memory 51, and/or non-volatile read/write memory 56), an internal clock and timer 53, receiver circuit(s) 54, transmission circuit(s) 55 and/or transceiver circuit(s) (e.g., IR and/or RF), a means 58 to provide feedback to the user (e.g., LED, display, speaker, and/or the like), a power supply 62, and input/output means 64, (e.g., serial I/0 port, wireless transceiver, bar code scanner, X-10 bridge, SCP Bridge, Ethernet port, etc.), as is generally illustrated in FIG. 3. Arling at 6:30-6:42. It will be appreciated that the abovementioned transmitter 55, receiver 54, and/or input/output means 64 may be used to connect control device 14 to one or more networked appliances, content servers, computers, the Internet, or other devices and appliances of a networked home control environment. As such programming and instructions on the control device may control the operation of other devices and appliances in the system, access content and command data stored or maintained either entirely or in part at a location physically separate from the control device 14 (such as for example in a server or personal computer located elsewhere in the home or remotely via the Internet), and communicate wirelessly with a remote control unit to accomplish command and control features of the current invention. Arling at 6:65-7:12. *See also* Fig. 2 and Fig. 3.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		 FIGURE 2

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		 FIGURE 3

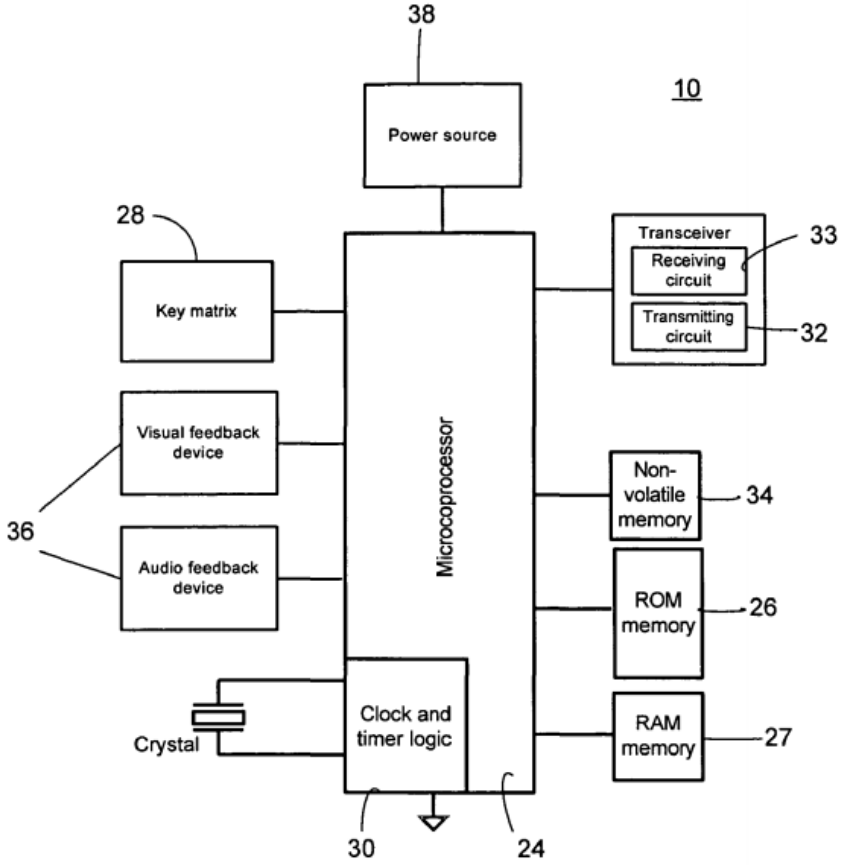
Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		To the extent the foregoing disclosure(s) in Arling do not expressly disclose this limitation, a person of ordinary skill in the art would have determined that Arling inherently included this limitation, or that the limitation would have been obvious in light of Arling alone or in combination with AAPA, the knowledge of one of ordinary skill in the art, or combinations with other references for at least the reasons stated pursuant to P.R. 3-3(b) in the cover pleading and/or in the claim charts.
22[b]	a decoder; and	Arling discloses a decoder. For example: Looking now to FIG. 2, for use in transmitting command codes, generic commands, macro commands, etc. to one or more of the appliances (both network enabled and legacy) the remote control IO may include, as needed for a particular application, a processor 24 coupled to a memory device (such as ROM memory 26, RAM memory 27, and/or a non-volatile memory 34), a key matrix 28 (e.g., physical buttons, a touch screen display, or a combination thereof), an internal clock and timer 30, transmission circuit(s) 32, receiver circuit(s) 33, and/or transceiver circuit(s) (e.g., IR and/or RF), a means 36 to provide feedback to the user (e.g., LED, display, speaker, and/or the like), and a power supply 38 as generally illustrated in FIG. 2. As will be understood by those of skill in the art, the memory device may include executable instructions that are intended to be executed by the processor 24 to control the operation of the remote control 10. In this manner, the processor 24 may be programmed to control the various electronic components within the remote control 10, e.g., to monitor the power supply 38, to cause the transmission of signals, etc. Arling at 3:36-3:56. In either case, the control device 14 may include, as needed for a particular application, a processor 50 coupled to a memory device (such as ROM memory 52, RAM memory 51, and/or non-volatile read/write memory 56), an internal clock and timer 53, receiver circuit(s) 54, transmission circuit(s) 55 and/or transceiver circuit(s) (e.g., IR and/or RF), a means 58 to provide feedback to the user (e.g., LED, display, speaker, and/or the like), a power supply 62, and input/output means 64, (e.g., serial I/0 port, wireless transceiver, bar code scanner, X-10 bridge, SCP Bridge, Ethernet port, etc.), as is generally illustrated in FIG. 3. The memory device may include executable instructions that are intended to be executed by the processor 50 to control the operation of the control device 14. In this manner, the processor 50 may be programmed to control the various electronic components within the control device 14, e.g., to

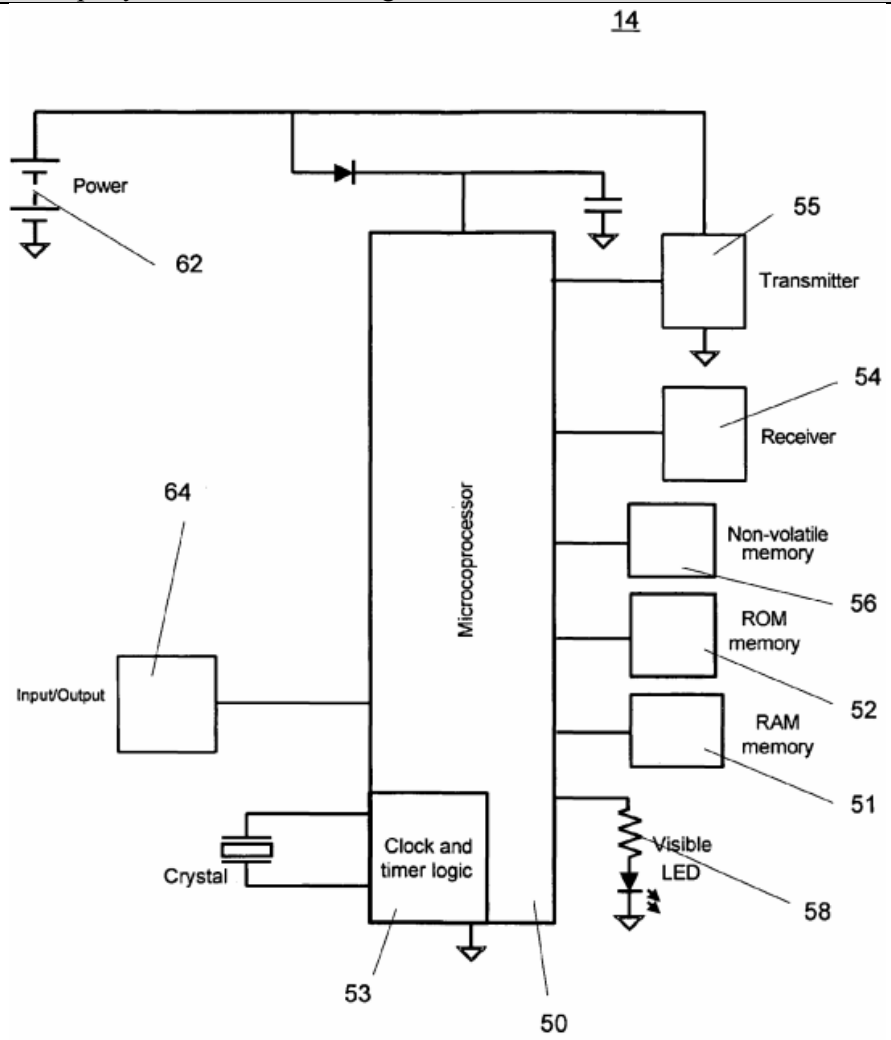
Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		monitor the power supply 62, to cause the transmission of signals, to provide audio or visual prompts to a user, etc. Arling at 6:30-6:48. It will also be appreciated that the programming and instructions necessary to cause the portable device and/or other control devices to decode command input, perform state and device based operations, and other functions described above are well within the ordinary capabilities of one skilled in art, and that various algorithms, engines, and logic operations may be used in connection with the system and methods described herein to bring about a desired result. Arling at 15:22-15:34. *See also* Fig. 2 and Fig. 3.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		 FIGURE 2

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		 FIGURE 3

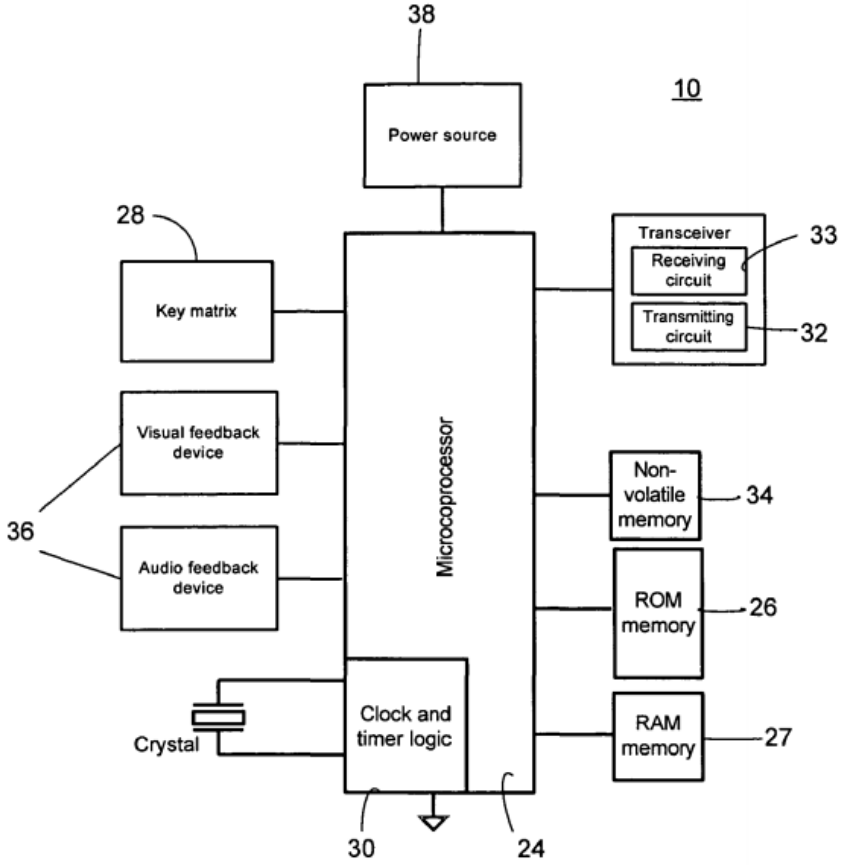
Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		To the extent the foregoing disclosure(s) in Arling do not expressly disclose this limitation, a person of ordinary skill in the art would have determined that Arling inherently included this limitation, or that the limitation would have been obvious in light of Arling alone or in combination with AAPA, the knowledge of one of ordinary skill in the art, or combinations with other references for at least the reasons stated pursuant to P.R. 3-3(b) in the cover pleading and/or in the claim charts.
22[c]	a network interface configured to provide a communication through a network communication channel,	Arling discloses a network interface configured to provide a communication through a network communication channel. For example: > The networked home control and automation environment 100 itself may utilize well known centralized networking methods, ad hoc networking methods (including peer-to-peer networking), powerline or phoneline based networking methods, or a combination of the above (whether wired or wireless) to accomplish the features and goals of the present invention. Additionally, it will be appreciated that particular appliances, devices, and components of the exemplary system may incorporate some or all of the features, functions, and capabilities of other individual devices such that a minimal number of separate physical devices are required in a given home environment to accomplish the goals of the current invention. Arling at 3:9-3:23. > Looking now to FIG. 2, for use in transmitting command codes, generic commands, macro commands, etc. to one or more of the appliances (both network enabled and legacy) the remote control IO may include, as needed for a particular application, a processor 24 coupled to a memory device (such as ROM memory 26, RAM memory 27, and/or a non-volatile memory 34), a key matrix 28 (e.g., physical buttons, a touch screen display, or a combination thereof), an internal clock and timer 30, transmission circuit(s) 32, receiver circuit(s) 33, and/or transceiver circuit(s) (e.g., IR and/or RF), a means 36 to provide feedback to the user (e.g., LED, display, speaker, and/or the like), and a power supply 38 as generally illustrated in FIG. 2. Arling at 3:36-3:49. > As such the general control device as shown and described in FIG. 3 may be configured and modified as further described herein to function as a location signaling device, network enablement device, command/state monitor, control pod, network bridge (such as for example an IR, RF, X-10, or Simple Control Protocol (SCP) bridge), or any combination of the above.

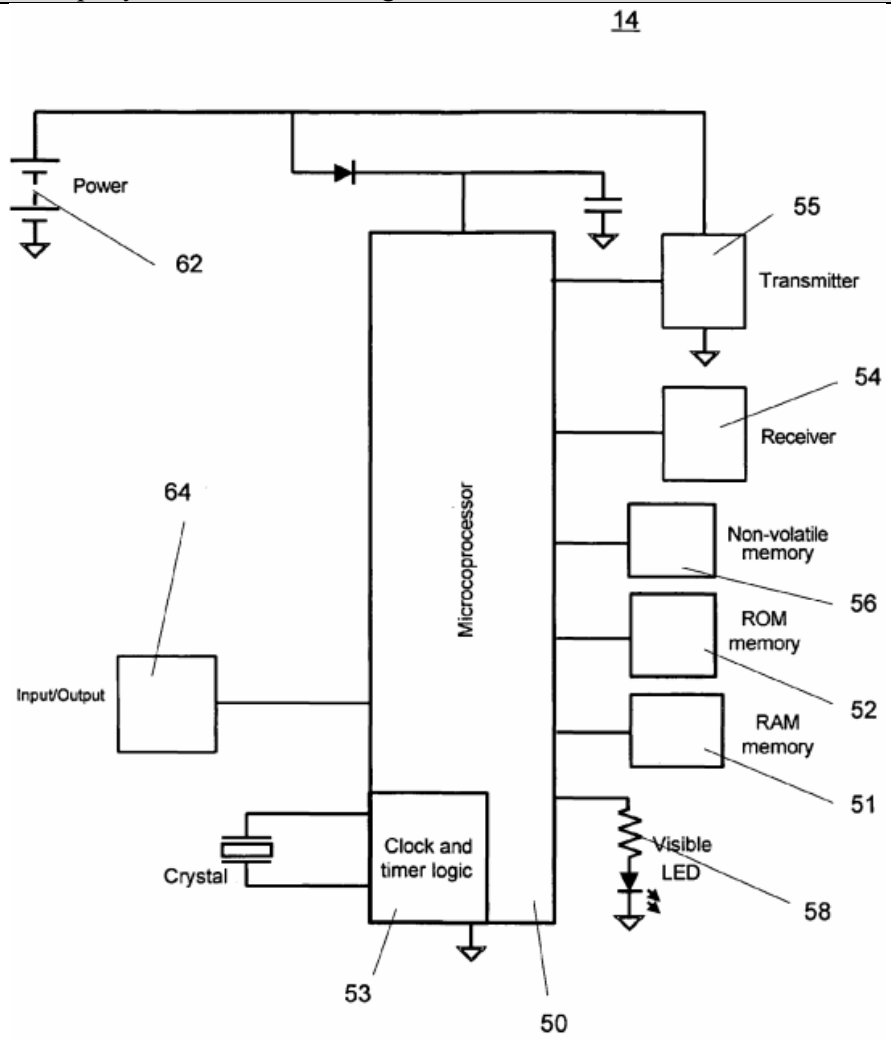
Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Arling at 6:14-6:20. In either case, the control device 14 may include, as needed for a particular application, a processor 50 coupled to a memory device (such as ROM memory 52, RAM memory 51, and/or non-volatile read/write memory 56), an internal clock and timer 53, receiver circuit(s) 54, transmission circuit(s) 55 and/or transceiver circuit(s) (e.g., IR and/or RF), a means 58 to provide feedback to the user (e.g., LED, display, speaker, and/or the like), a power supply 62, and input/output means 64, (e.g., serial I/0 port, wireless transceiver, bar code scanner, X-10 bridge, SCP Bridge, Ethernet port, etc.), as is generally illustrated in FIG. 3. Arling at 6:30-6:42. It will be appreciated that the abovementioned transmitter 55, receiver 54, and/or input/output means 64 may be used to connect control device 14 to one or more networked appliances, content servers, computers, the Internet, or other devices and appliances of a networked home control environment. As such programming and instructions on the control device may control the operation of other devices and appliances in the system, access content and command data stored or maintained either entirely or in part at a location physically separate from the control device 14 (such as for example in a server or personal computer located elsewhere in the home or remotely via the Internet), and communicate wirelessly with a remote control unit to accomplish command and control features of the current invention. Arling at 6:65-7:12. *See also* Fig. 2 and Fig. 3.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		 FIGURE 2

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		 FIGURE 3

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		To the extent the foregoing disclosure(s) in Arling do not expressly disclose this limitation, a person of ordinary skill in the art would have determined that Arling inherently included this limitation, or that the limitation would have been obvious in light of Arling alone or in combination with AAPA, the knowledge of one of ordinary skill in the art, or combinations with other references for at least the reasons stated pursuant to P.R. 3-3(b) in the cover pleading and/or in the claim charts.
22[d]	wherein the wireless HUB system is configured to perform a conversion of the wireless signal to accommodate production of a corresponding information content, the wireless signal comprising a compressed signal, the conversion comprising decompressing the compressed signal;	Arling discloses a wireless HUB system wherein the wireless HUB system is configured to perform a conversion of the wireless signal to accommodate production of a corresponding information content, the wireless signal comprising a compressed signal, the conversion comprising decompressing the compressed signal. For example: As described above, a control device to network enable legacy appliances of the current invention (a "network enablement device") may be a single physical device, or may be combined as a functional element of other devices, appliances, and components of the system. It will also be appreciated that the network enablement device may support several legacy devices simultaneously, and need not be deployed in a one-to-one fashion for each legacy device of the system. Arling at 9:4-9:12. As shown in FIG. 4, the network enablement device 70 is connected to the networked environment 100 and provides a superficial mask (assigned IP address) via a virtual network layer 72 for control and content access of the underlying legacy device(s) 12 as well as content converter(s) 74 (in most cases analog to digital converters and vice versa) to return over the networked environment the content in a format as if the original legacy appliance was a network enabled appliance (e.g., a UPnP compliant device). Arling at 9:33-9:41. Generally, a user will initiate a save state command for a particular home entertainment center (typically a group of appliances) from which a movie, music, television broadcast, image, or other media element is being played. Any device that can transmit a unique coded signal in IR, RF or other protocol could be used to instigate the process of suspend, storing, transmitting and resuming the session state (e.g., LCD based remote, traditional tactile remote, single button remote, mobile wireless device, etc.) Both the playback state of the media, as well as the device

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		configurations and settings during playback, will be saved either in a central data server (such as a media server connected to one or more devices of the home entertainment center), sent to the remote control to be saved, or a combination thereof. Once data has been saved it may be recalled at a later time in its current state to operate the devices and media of the same entertainment center from which it was saved, or it may be recalled (though the operation of devices by the data server and/or remote control) for a different home entertainment center having a set of analogous home appliances of different brand and/or model. In order to ensure that media playback and device state settings transfer correctly to the second home entertainment center devices, a set of device conversion definitions is applied to each data element from the first entertainment center (e.g., television settings data, audio receiver settings data, etc.) in order to ensure that data and commands saved from the first device(s) will translate appropriately to the analogous device(s) of the second entertainment center. The media and appliance states able to be saved include, but are not limited to, current cable, satellite, or broadband channel being viewed, PPV or PVR program being viewed, MP3 play list with current track and track offset, Internet based audio or video streams, or any streaming content that can be paused and resumed. In is envisioned that Internet or other widely accessible network based content may be suspended and resumed from any set of state controllable A/V appliances that have access to Internet/network based content. For example, an Internet based video file could be started from within a home entertainment environment, paused by the user (e.g., via a pause or save state button on a remote control or PDA), and later resumed in a remote hotel room on a different entertainment environment which is controllable by the user (e.g., via the remote or PDA) and which is able to access the Internet based video file. Arling at 10:37-11:14. It is also envisioned that when integrated with a home control and automation environment, various location centric “state snapshots” may be saved in a remote control or by a central server for playback at a later time on any set of analogous appliances in the home. For instance, a save room command would capture all current media and appliances state setting for a given room, including lighting states (e.g., power and dimmer states), audio playback state (e.g., a given song playing on a given appliance), video playback state (e.g., a given video playing on a given appliance), room thermostat state for temperature settings, etc. Many such similar home, room, environment, or appliance specific states may be saved for subsequent recall and playback, using the same set of appliances or a set of analogous appliances. It will be

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		understood that the extent of saved state data and associated data translation which may be necessary to accomplish a given playback operation depends on the number of particular appliances and media elements involved in a previous save state operation. It should also be understood that the state data saved may include locally-measured items gathered by the controlling device. For example, when the controlling device includes a microphone (e.g., is a PDA or a voice activated remote control, etc.) a measurement of the current volume level may be taken and saved. Upon resumption of playback, the media stream may be resumed one or two seconds back from the original pause point in order to allow a comparable volume measurement to be made and the sound level adjusted accordingly. Similarly, a controlling device which includes a light sensor (e.g., an LCD based unit with a sensor for automatic backlight control, an electroluminescent display based unit with automatic brightness control, etc.) may make local measurements of lighting levels in order to duplicate these when playback is resumed. In all cases, such locally measured data may be used as supplemental to, or in place of, inferred or explicit state data collected during operation of the appliances or equipment in question. The particular methods and techniques for scaling a simple single appliance media and state save and recall operation to support the saving and recalling of multiple appliance and media states will be apparent from the descriptions herein, as well as well within the routine skill of a programmer skilled in the art. Arling at 11:15-11:64. To the extent Arling does not expressly disclose a wireless HUB system wherein the wireless hub is configured to receive a request for a particular information content, it would have been obvious to one of ordinary skill in the art to combine Arling with one or more of the disclosures in the Intel Technical Journal to include a wireless HUB system wherein the wireless hub is configured to receive a request for a particular information content. One of ordinary skill in the art would have been motivated to combine the Arling reference with the disclosures in "Interoperable Home Infrastructure" in the Intel Technical Journal, Volume 6, Issue 4, published Nov. 15, 2002, ("Interoperable Home Infrastructure") (fully incorporated by reference in Arling) as a combination of prior art elements according to known methods to yield predictable results, as Arling purports to "enable advanced home control features" in such home interoperability technologies as disclosed in the Interoperable Home Infrastructure, and otherwise a teaching, suggestion, or motivation in the prior art that would have led to one of ordinary skill to modify Arling to combine these references. Interoperable Home Infrastructure discloses this limiation. For example:

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Media streaming refers to the ability to transfer real time content between multiple, networked devices and between different software modules on a device (see Figure 3). Since these software modules usually perform media processing functions on the data being transferred, such as encoding and decoding, compression and decompression, and packetization and de-packetization, they are referred to as media streaming components. "Interoperable Home Infrastructure" at page 10. When preparing to transfer a piece of content from the server to the renderer, the CM service must be able to set up and configure its network and codec subsystems according to the requested mechanism. In many cases, this may involve constructing a data path from the device's network subsystem, through the appropriate codec, to the device's output hardware. In many implementations, the CM service uses a set of pluggable modules that provide a data path from a source module (e.g., the network interface card), through zero or more intermediate modules (e.g., a codec), and finally to a sink module (e.g., the device's output hardware). A popular example of a pluggable media streaming engine is Microsoft's DirectX . With this technology, individual filters correspond to particular media streaming functions (e.g., capture a data stream from the network, decode and/or transform the stream, etc.) Individual filters are plugged together to form a complete data path called a filter graph. "Interoperable Home Infrastructure" at page 22. EIA-775 [5] is the DTV 1394 Interface Specification developed by CEA's R4.8 1394 Interface Committee. The low-level EIA-775 protocol provides a two-way bus type connection for high-end audio/video products. The bus architecture allows several devices to send and receive audio, video, and control information to all other devices on the bus. For example, when going from a TV to a DVD, a consumer needs only to insert the disk into the player and hit play. The player will send the right messages to the audio and video displays to set up for stereo, or multichannel and standard, or wide screen—whatever the case may be. EIA 775.1, the WEB-Enhanced DTV 1394 Interface specification, additionally includes Web browser and other Internet protocols. These allow a source of MPEG service (such as a cable or terrestrial set-top box, digital VCR or DTV) to utilize the MPEG decoding and display capabilities. "Interoperable Home Infrastructure" at page 35.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Further, it would also have been obvious to one of ordinary skill to combine Arling with U.S. Provisional Patent Application No. 60/517,737 ("'237 App") (incorporated by reference in Arling) to include a wireless HUB system wherein the wireless hub is configured to receive a request for a particular information content. One of ordinary skill in the art would have been motivated to combine Arling with the '237 App as a reference that Arling purports to provide "a better understanding of the objects, advantages, features, properties and relationships" of the disclosed system, and would have been a combination of prior art elements according to known methods to yield predictable results, and otherwise a teaching, suggestion, or motivation in the prior art that would have led to one of ordinary skill to modify Arling to combine these references. The '237 App discloses this limitation. For example, Additionally, according to the exemplary system, some or all of the above 10 devices, appliances, or components are configured to be network enabled and interoperable, such as those that are compliant with, for example, the Home Audio Video interoperability ("HAVi"), Universal Plug and Play ("UPnP"), and, generally, other such standards that determine parameter passing and interaction between appliances. In this regard, various standards are being proposed which are intended to provide uniform 15 methods of digital interconnection between appliances. These standards generally specify not only how to transfer audio video source materials, but also how to effect the exchange of control functions between appliances, since it is relatively easy to interleave these different signals on a single interface when they are encoded at the digital level. A more detailed description of network enabled appliances (including HAVi and UPnP 20 compliant appliances) and their various functions and features may be found in commonly assigned co-pending U.S. provisional application entitled "Home Appliance Control System and Methods in a Networked Environment" (attorney docket no. 81230.101US). '237 App at 10:9-10:24. A determination that remote control 10 is present in a different location than source appliances 12a (i.e. data indicative of a location change present on remote control 10 or central state server 14) may trigger the process of converting data set 132 to data set 134 for application to a different set of destination appliances 12b. '237 App at 18:4-18:8.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Data conversion maps 138c may be used prior to generation of PVR state data 126a such that more accurate reproductions of device states (i.e. what the user experiences during media playback from PVR 126 versus playback of the same media from PVR 123) may be possible. For example, an output media format of ".mpg" for PVR 123 may have been saved as part of PVR state data 123a during a save operation. During conversion to PVR state data 126a, PVR device definitions 135c may include information indicating PVR 126 does not include support for .mpg format media files, and thus streaming or transferring the desired media file to the PVR 126 (via PVR state data 126a for generating commands to operate PVR 126) will not cause playback of the desired media. As such, preset, or dynamically generated data conversion maps (i.e. media format converters or alternate sources to search for or access the same media filein an acceptable format) may be used to further adjust or conform PVR state data 126a such that the state effected during a recall state operation for PVR 126 produces substantially the same user experience as saved from PVR 123. In this context, it will be appreciated that interdependencies may exist between devices which may also need to be accounted for through the state conversion mapping process. By way of example, PVR123 may be playing back anamorphically compressed video material suitable for presentation on a 16:9 aspect ratio widescreen display monitor 122. If the television 124 to which this video data is to be redirected on resumption of playback has a 4:3 aspect ratio display, this needs to be identified so that the video playback may be resumed in "letterbox" format (i.e. compressed vertically in the same degree as the horizontal anamorphic compression). In the case where resumption of playback is implemented by transferring the video data itself from PVR 123 to PVR 126, this may be inherently accounted for in the default output settings of PVR 126 as a result of its association with 4:3 television 124. However in the more general case where the resumed video data may be streamed directly from PVR 123 to TV 124 (via, e.g., an IEEE 1394 or 802.11 network) this adjustment will need to be effected at the data source, i.e. PVR 123. ’237 App at 20:13:-21:16. For instance, it will be understood and appreciated by those skilled in the art that the remote control 10 of the present invention may be any portable control device (including but not limited to IR and/or RF based remotes, portable phones, wireless capable PDAs, etc) capable of transmitting and/or receiving state data and command codes remotely to and from the appliances 12 or central state server 14. Likewise, the central state server 14 of the present invention may be any home control device (including but not limited to STB's, media center

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		PC's, home automation systems, etc) capable of receiving signals representing state date and/or command codes from the appliances and portable control device, performing conversion operations on saves state and command data, and effectuating state changes in one or more appliances (either directly, or through further operation and interaction with the portable control device or other control devices). '237 App at 27:11:-27:22. To the extent the foregoing disclosure(s) in Arling do not expressly disclose this limitation, a person of ordinary skill in the art would have determined that Arling inherently included this limitation, or that the limitation would have been obvious in light of Arling alone or in combination with AAPA, the knowledge of one of ordinary skill in the art, or combinations with other references for at least the reasons stated pursuant to P.R. 3-3(b) in the cover pleading and/or in the claim charts.
22[e]	wherein the decoder is configured to decompress the compressed signal;	Arling discloses a wireless HUB system wherein the decoder is configured to decompress the compressed signal. For example: As described above, a control device to network enable legacy appliances of the current invention (a "network enablement device") may be a single physical device, or may be combined as a functional element of other devices, appliances, and components of the system. It will also be appreciated that the network enablement device may support several legacy devices simultaneously, and need not be deployed in a one-to-one fashion for each legacy device of the system. Arling at 9:4-9:12. As shown in FIG. 4, the network enablement device 70 is connected to the networked environment 100 and provides a superficial mask (assigned IP address) via a virtual network layer 72 for control and content access of the underlying legacy device(s) 12 as well as content converter(s) 74 (in most cases analog to digital converters and vice versa) to return over the networked environment the content in a format as if the original legacy appliance was a network enabled appliance (e.g., a UPnP compliant device). Arling at 9:33-9:41.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Generally, a user will initiate a save state command for a particular home entertainment center (typically a group of appliances) from which a movie, music, television broadcast, image, or other media element is being played. Any device that can transmit a unique coded signal in IR, RF or other protocol could be used to instigate the process of suspend, storing, transmitting and resuming the session state (e.g., LCD based remote, traditional tactile remote, single button remote, mobile wireless device, etc.) Both the playback state of the media, as well as the device configurations and settings during playback, will be saved either in a central data server (such as a media server connected to one or more devices of the home entertainment center), sent to the remote control to be saved, or a combination thereof. Once data has been saved it may be recalled at a later time in its current state to operate the devices and media of the same entertainment center from which it was saved, or it may be recalled (though the operation of devices by the data server and/or remote control) for a different home entertainment center having a set of analogous home appliances of different brand and/or model. In order to ensure that media playback and device state settings transfer correctly to the second home entertainment center devices, a set of device conversion definitions is applied to each data element from the first entertainment center (e.g., television settings data, audio receiver settings data, etc.) in order to ensure that data and commands saved from the first device(s) will translate appropriately to the analogous device(s) of the second entertainment center. The media and appliance states able to be saved include, but are not limited to, current cable, satellite, or broadband channel being viewed, PPV or PVR program being viewed, MP3 play list with current track and track offset, Internet based audio or video streams, or any streaming content that can be paused and resumed. In is envisioned that Internet or other widely accessible network based content may be suspended and resumed from any set of state controllable A/V appliances that have access to Internet/network based content. For example, an Internet based video file could be started from within a home entertainment environment, paused by the user (e.g., via a pause or save state button on a remote control or PDA), and later resumed in a remote hotel room on a different entertainment environment which is controllable by the user (e.g., via the remote or PDA) and which is able to access the Internet based video file. Arling at 10:37-11:14. It is also envisioned that when integrated with a home control and automation environment, various location centric “state snapshots” may be saved in a remote control or by a central server for playback at a later time on any set of analogous appliances in the home. For instance,

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		a save room command would capture all current media and appliances state setting for a given room, including lighting states (e.g., power and dimmer states), audio playback state (e.g., a given song playing on a given appliance), video playback state (e.g., a given video playing on a given appliance), room thermostat state for temperature settings, etc. Many such similar home, room, environment, or appliance specific states may be saved for subsequent recall and playback, using the same set of appliances or a set of analogous appliances. It will be understood that the extent of saved state data and associated data translation which may be necessary to accomplish a given playback operation depends on the number of particular appliances and media elements involved in a previous save state operation. It should also be understood that the state data saved may include locally-measured items gathered by the controlling device. For example, when the controlling device includes a microphone (e.g., is a PDA or a voice activated remote control, etc.) a measurement of the current volume level may be taken and saved. Upon resumption of playback, the media stream may be resumed one or two seconds back from the original pause point in order to allow a comparable volume measurement to be made and the sound level adjusted accordingly. Similarly, a controlling device which includes a light sensor (e.g., an LCD based unit with a sensor for automatic backlight control, an electroluminescent display based unit with automatic brightness control, etc.) may make local measurements of lighting levels in order to duplicate these when playback is resumed. In all cases, such locally measured data may be used as supplemental to, or in place of, inferred or explicit state data collected during operation of the appliances or equipment in question. The particular methods and techniques for scaling a simple single appliance media and state save and recall operation to support the saving and recalling of multiple appliance and media states will be apparent from the descriptions herein, as well as well within the routine skill of a programmer skilled in the art. Arling at 11:15-11:64. To the extent Arling does not expressly disclose a wireless HUB system comprising a decoder wherein the decoder is configured to decompress the compressed signal, it would have been obvious to one of ordinary skill in the art to combine Arling with one or more of the disclosures in the Intel Technical Journal to include such a wireless HUB system. One of ordinary skill in the art would have been motivated to combine the Arling reference with the disclosures in “Interoperable Home Infrastructure” in the Intel Technical Journal, Volume 6, Issue 4, published Nov. 15, 2002, (“Interoperable Home Infrastructure”) (fully incorporated by reference in Arling) as a combination of prior art elements according to known methods to yield predictable results, as Arling purports to “enable advanced home

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		control features" in such home interoperability technologies as disclosed in the Interoperable Home Infrastructure, and otherwise a teaching, suggestion, or motivation in the prior art that would have led to one of ordinary skill to modify Arling to combine these references. Interoperable Home Infrastructure discloses this limiation. For example: > Media streaming refers to the ability to transfer real time content between multiple, networked devices and between different software modules on a device (see Figure 3). Since these software modules usually perform media processing functions on the data being transferred, such as encoding and decoding, compression and decompression, and packetization and de-packetization, they are referred to as media streaming components. "Interoperable Home Infrastructure" at page 10. > When preparing to transfer a piece of content from the server to the renderer, the CM service must be able to set up and configure its network and codec subsystems according to the requested mechanism. In many cases, this may involve constructing a data path from the device's network subsystem, through the appropriate codec, to the device's output hardware. In many implementations, the CM service uses a set of pluggable modules that provide a data path from a source module (e.g., the network interface card), through zero or more intermediate modules (e.g., a codec), and finally to a sink module (e.g., the device's output hardware). A popular example of a pluggable media streaming engine is Microsoft's DirectX . With this technology, individual filters correspond to particular media streaming functions (e.g., capture a data stream from the network, decode and/or transform the stream, etc.) Individual filters are plugged together to form a complete data path called a filter graph. "Interoperable Home Infrastructure" at page 22. > EIA-775 [5] is the DTV 1394 Interface Specification developed by CEA's R4.8 1394 Interface Committee. The low-level EIA-775 protocol provides a two-way bus type connection for high-end audio/video products. The bus architecture allows several devices to send and receive audio, video, and control information to all other devices on the bus. For example, when going from a TV to a DVD, a consumer needs only to insert the disk into the player and hit play. The player will send the right messages to the audio and video displays to set up for stereo, or multichannel and standard, or wide screen—whatever the case may be. EIA 775.1, the WEB-

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Enhanced DTV 1394 Interface specification, additionally includes Web browser and other Internet protocols. These allow a source of MPEG service (such as a cable or terrestrial set-top box, digital VCR or DTV) to utilize the MPEG decoding and display capabilities. "Interoperable Home Infrastructure" at page 35. Further, it would also have been obvious to one of ordinary skill to combine Arling with U.S. Provisional Patent Application No. 60/517,737 ("'237 App") (incorporated by reference in Arling) to include a wireless HUB system comprising a decoder wherein the decoder is configured to decompress the compressed signal. One of ordinary skill in the art would have been motivated to combine Arling with the '237 App as a reference that Arling purports to provide "a better understanding of the objects, advantages, features, properties and relationships" of the disclosed system, and would have been a combination of prior art elements according to known methods to yield predictable results, and otherwise a teaching, suggestion, or motivation in the prior art that would have led to one of ordinary skill to modify Arling to combine these references. The '237 App discloses this limitation. For example: A determination that remote control 10 is present in a different location than source appliances 12a (i.e. data indicative of a location change present on remote control 10 or central state server 14) may trigger the process of converting data set 132 to data set 134 for application to a different set of destination appliances 12b. '237 App at 18:4-18:8. Data conversion maps 138c may be used prior to generation of PVR state data 126a such that more accurate reproductions of device states (i.e. what the user experiences during media playback from PVR 126 versus playback of the same media from PVR 123) may be possible. For example, an output media format of ".mpg" for PVR 123 may have been saved as part of PVR state data 123a during a save operation. During conversion to PVR state data 126a, PVR device definitions 135c may include information indicating PVR 126 does not include support for .mpg format media files, and thus streaming or transferring the desired media file to the PVR 126 (via PVR state data 126a for generating commands to operate PVR 126) will not cause playback of the desired media. As such, preset, or dynamically generated data conversion maps (i.e. media format converters or alternate sources to search for or access the same media filein an acceptable format) may be used to further adjust or conform PVR state data 126a such

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		that the state effected during a recall state operation for PVR 126 produces substantially the same user experience as saved from PVR 123. In this context, it will be appreciated that interdependencies may exist between devices which may also need to be accounted for through the state conversion mapping process. By way of example, PVR123 may be playing back anamorphically compressed video material suitable for presentation on a 16:9 aspect ratio widescreen display monitor 122. If the television 124 to which this video data is to be redirected on resumption of playback has a 4:3 aspect ratio display, this needs to be identified so that the video playback may be resumed in "letterbox" format (i.e. compressed vertically in the same degree as the horizontal anamorphic compression). In the case where resumption of playback is implemented by transferring the video data itself from PVR 123 to PVR 126, this may be inherently accounted for in the default output settings of PVR 126 as a result of its association with 4:3 television 124. However in the more general case where the resumed video data may be streamed directly from PVR 123 to TV 124 (via, e.g., an IEEE 1394 or 802.11 network) this adjustment will need to be effected at the data source, i.e. PVR 123. ’237 App at 20:13:-21:16. For instance, it will be understood and appreciated by those skilled in the art that the remote control 10 of the present invention may be any portable control device (including but not limited to IR and/or RF based remotes, portable phones, wireless capable PDAs, etc) capable of transmitting and/or receiving state data and command codes remotely to and from the appliances 12 or central state server 14. Likewise, the central state server 14 of the present invention may be any home control device (including but not limited to STB's, media center PC's, home automation systems, etc) capable of receiving signals representing state date and/or command codes from the appliances and portable control device, performing conversion operations on saves state and command data, and effectuating state changes in one or more appliances (either directly, or through further operation and interaction with the portable control device or other control devices). ’237 App at 27:11:-27:22. To the extent the foregoing disclosure(s) in Arling do not expressly disclose this limitation, a person of ordinary skill in the art would have determined that Arling inherently included this limitation, or that the limitation would have been obvious in light of Arling alone or in combination with AAPA, the

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		knowledge of one of ordinary skill in the art, or combinations with other references for at least the reasons stated pursuant to P.R. 3-3(b) in the cover pleading and/or in the claim charts.
22[f]	wherein the wireless HUB system is further configured to communicate, through the network communication channel, information for managing an item status of an item in connection with a short range wireless communication regarding an updated status of the item; and	Arling discloses a wireless HUB system wherein the wireless HUB system is further configured to communicate, through the network communication channel, information for managing an item status of an item in connection with a short range wireless communication regarding an updated status of the item. For example: By way of example only, the appliances 12 may include, but are not limited to, televisions, VCRs, DVRs, DVD players, cable converter boxes, amplifiers, CD players, game consoles, home lighting, drapery, fans, HVAC systems, thermostats, personal computers, security systems, network enabled automobiles, etc. According to the exemplary system, some or all of the above devices, appliances, and components are configured to be network enabled and interoperable (e.g., as defined and described in the UPnP and/or HAVi specifications which can be found at the upnp.org Web site and the havi.org Web site respectively, which specifications are incorporated herein by reference in their entirety) such that basic device addressing, accessibility, monitoring, remote management, and other network communication based features are possible in a home control and automation environment. The networked home control and automation environment 100 itself may utilize well known centralized networking methods, ad hoc networking methods (including peer-to-peer networking), powerline or phoneline based networking methods, or a combination of the above (whether wired or wireless) to accomplish the features and goals of the present invention. Additionally, it will be appreciated that particular appliances, devices, and components of the exemplary system may incorporate some or all of the features, functions, and capabilities of other individual devices such that a minimal number of separate physical devices are required in a given home environment to accomplish the goals of the current invention. For instance, devices such as a Media Center PC or network enabled TV (e.g., one compliant with the UpnP and/or HAVi specifications) may include, in additional to standard computing and/or audio/video playback functions, system wide control capabilities, content management and rendering abilities, and location based services. As such it will be appreciated that the various system elements defined and described herein should be considered as functional modules capable of implementation individually or collectively in a single physical device or a software module in a software product, or one or more elements may be implemented in separate physical devices or software modules, without departing from the scope and spirit of the present invention.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Arling at 2:61-3:36. To identify home appliances by type and make (and sometimes model) such that the remote control device 10 is adapted to transmit recognizable command codes in the format appropriate for such identified appliances 12, data may be entered into the universal remote control device 10. Since methods for setting up a remote control to control the operation of specific home appliances are well-known, such methods need not be described in greater detail herein. Nevertheless, for additional information pertaining to remote control setup, the reader may turn to U.S. Pat. Nos. 4,959,810, 5,614,906, and 6,225,938. It will also be appreciated that the remote control 10 may be set up to control an appliance 12 by being taught the command codes needed to control such appliance as described in U.S. Pat. No. 4,623,887. To cause the remote control IO to perform an action, the remote control IO is adapted to be responsive to events, such as a sensed user interaction with the key matrix 28, receipt of a transmission, etc. In response to an event, appropriate instructions within the memory 26 may be executed. For example, when a command key is activated on the remote control 10, the remote control IO may retrieve a command code corresponding to the activated command key from memory 26 and transmit the command code to a device in a format recognizable by the device. It will be appreciated that the instructions within the memory 26 can be used not only to cause the transmission of command codes and/or data to the appliances 12 but also to perform local operations, e.g., location based features and functions as described in greater detail below. While not limiting, other local operations that may be performed by the remote control 10 include displaying information/data, favorite channel setup, macro button setup, function key relocation, etc. Examples oflocal operations can be found in U.S. Pat. Nos. 5,481,256, 5,959,751, and 6,014,092. Additional examples of remote controls 10 may be found in commonly owned, U.S. Pat. No. 6,225,938 and U.S. application Ser. Nos. 60/264,767, 09/905,423, 09/905,432, and 09/905,396. Remote control 10 may also include, as needed for a particular application, CCD or other imaging sensors, microphone, and/or touchscreen display for receipt of various types of user input for effecting operations of the remote control. Remote control 10 may also be configured to include appliance, control server, and content server functions, as will be described in greater detail below. For instance, remote control IO may be implemented on a laptop computer, smart panel, tablet PC, wireless enabled PDA, mobile phone, etc which may all include programming to cause remote control 10 to playback music, videos, pictures and the like, monitor appliance

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		feature and state tables for advanced control functions, and include programming for location determination methods. Remote control 10 may thus be viewed as a wireless appliance having functions similar to less portable appliances of the networked control environment, and as such the following discussions and descriptions of the remote controls, and controlling devices in general, should be taken in the broadest sense possible. Arling at 4:3-4:59. For enabling frequent feature set and state updates of appliances present in the networked control environment on associated control servers and remote controls, well known multicasting methods for appliance advertising and discovery may be used (e.g., IP Multicasting). In this way appliances, servers, and remote controls may easily monitor and register feature set and state changes on the networked control environment. As described above and shown in FIG. 1, the control and content servers (including control pods, command/state monitors, content renderers, etc.) of the present invention may be separate devices, may be incorporated into one or more of the appliances such that no individual "server devices" are present, etc. Functionally, content centric devices can serve as a repository for digital media files (audio, video, photo, and multimedia content), offer search and cataloging based services, and serve files to one or more appliances for playback. Generally computing based devices such as Media Center PC's, "Content Servers," and "Content Renderers," as defined and described in, for example, the UPnP specification, are examples of content centric devices in a home control and automation environment. Control centric devices generally function to receive, save, process, and transmit media and state data for appliances and devices of the home control and automation environment. Various types of command data (IR, RF, Powerline commands, Phoneline commands, etc.) may be saved by command/state monitors as described in greater detail below. Whether implemented on a single device, or distributed across multiple devices in the home control and automation environment, these control devices are capable of performing logic based operations on saved command and state data for use with appliances, remote control interfaces, and desired user functions. Preset control instructions on control devices may dictate how and when command and state data is captured and processed, or user interaction with an appliance or remote control device may dictate the manner of command and state data capture and processing. Saved and/or

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		processed command and state playback may likewise be effectuated by preset instructions, automated system processes, or user interaction with appliances and devices of the system. Generally, the functions performed by a particular control device will depend on included firmware, software and programming, additional components, and level of integration with other appliances of the system. As such the general control device as shown and described in FIG. 3 may be configured and modified as further described herein to function as a location signaling device, network enablement device, command/state monitor, control pod, network bridge (such as for example an IR, RF, X-10, or Simple Control Protocol (SCP) bridge), or any combination of the above. The control device may also be fully incorporated into any of the appliances of the home environment as a functional element (i.e., as a service or application software running on the appliance). Arling at 5:58-6:24. It will also be appreciated that in cases where control device capability is integrated into an appliance, some or all of the functional elements described above in conjunction with FIG. 3 may be combined with similar elements already present in the appliance for other purposes. It will be appreciated that the abovementioned transmitter 55, receiver 54, and/or input/output means 64 may be used to connect control device 14 to one or more networked appliances, content servers, computers, the Internet, or other devices and appliances of a networked home control environment. As such programming and instructions on the control device may control the operation of other devices and appliances in the system, access content and command data stored or maintained either entirely or in part at a location physically separate from the control device 14 (such as for example in a server or personal computer located elsewhere in the home or remotely via the Internet), and communicate wirelessly with a remote control unit to accomplish command and control features of the current invention. In order to enable location based control and automation functions, a remote control position determination system and method is described in conjunction with the networked control environment of the present invention. In general, the remote control position determination system includes one or more location signaling devices within multiple control environments (or control zones), each control environment including home appliances operable by the remote control. In one exemplary system of the remote control position determination system, a location signaling device (i.e., one implementation of control device 14) is placed within each

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		control environment in order to send one or more signals to the remote control for location determination operations. Various methods for determining the location of the remote control relative to the various control environments and zones, or similarly determining the proximity of various home appliances to the remote control are disclosed, as well as methods for using determined location information to dynamically reconfigure default command set and/or macro commands on the remote control to control a desired appliance or multi-appliance function. An exemplary remote control position determination system and method is described in greater detail in U.S. provisional patent entitled "System And Method for Controlling Device Location Determination" (Ser. No. 60/517,588) which is owned by a common assignee and incorporated herein by reference in its entirety. By implementing a remote control location determination system with the networked home control environment of the present invention, many additional functions and features can be accomplished. For instance, a remote control may determine its location based on appliance signaling and unique identifiers, then the location data for the remote control may be formatted and broadcast as a data transmission (i.e., XML format or in a URI as described below) to all appliances in the environment. In this way, specific location based services and functions may be performed by any and all devices in the networked environment on an ongoing basis based on the broadcast remote control location state data. It will be appreciated that the determined state data may be published as a device feature or state of the remote control (or by any other appliance in the system having access to remote location data) using for example Simple Service Discovery Protocol (SSDP), XML, or other methods as described in the UPnP specification. It may also be possible to modify the URI or other appliance identifier such that the broadcast and/or discoverable address contains specific information (e.g., appliance location, device state, services available, etc.) relating to the appliance in addition to the device address. By way of example only, the device address for a specific appliance may be formatted as follows to indicate additional information in conjunction with the address: http://Address/Location/StateData/ServicesData, where "Address" is the network address of the device, "Location" is the physical location relating to the environment the device is in, "StateData" includes one or more indications of the device state, and "ServicesData" includes an indication of the services offered by the device. Other methods of publishing determined location state data are possible given the disclosure and such methods are well within the routine skill of a programmer skilled in the art.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Based on the present location of the remote control in an environment, only those appliance within a specified proximity to the remote control may be caused to report their function and state data, or commands transmitted from the remote control may be prioritized for appliances that are determined to be in close proximity to the remote control at any given time. Dynamic and/or complex macro commands (as described in greater detail below) may be configured to cause appliance states to change any time a particular location is reported by the remote control (e.g., lighting fixtures may be configured to receive location data based on the remote control location determination and modify their power state or brightness level continuously based on remote control location). Arling at 6:65-8:20. It may be advantageous in such a scenario to initiate a location determination request from one or more of the appliances or control devices within the home network, rather than from the remote control. The request from the appliances or control devices may be in the form of a signal response (based on a command issued from another appliance or control server rather than a signal request from the remote control) which provides location data to the remote. Once in receipt of the location data the remote control may make a position determination and broadcast its position data to all networked appliances. Arling at 8:33-8:43. In a basic embodiment, the network enablement device (such as may be configured using the control device 14 shown in FIG. 3) includes a consumer IR (CIR) to network bridge such that commands to and from the legacy appliance to which the network enablement device is connected may be saved, monitored, processed, etc. In addition to IR blasting capability, the network enablement device is able to emulate multiple networked devices (e.g., UPnP compliant devices) that encapsulate the functionality of legacy consumer electronics devices that are only controllable via standard CIR commands. For example, if a network enablement device is configured in conjunction with a legacy DVD player, then the network enablement device (including a CIR bridge) could announce and emulate a virtual networked media renderer device, supporting, for example AV transport, rendering control, and connection manager services (e.g., as defined and described in the UPnP specification). The network enablement device could also serve to provide remote IO interfaces for each simulated device (e.g., as also described in the UPnP specification).

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Arling at 9:13-9:32. In order to accomplish the described control features and functions, especially those relating to saving and recalling media states, dynamic macros, and generic remote commands, a system and method for monitoring and saving media and devices states may be incorporated with the home control and automation system of the current invention. Co-pending U.S. applications entitled "System and Method for Monitoring Remote Control Transmissions," (Ser. No. 10/603,839), and "System and Method for Monitoring Remote Control Transmissions," (Ser. No. 10/6665,650), both owned by a common assignee and fully incorporated by reference herein, describe a system and associated methods for such monitoring of macro commands and appliance states. Generally, the command/state monitor receives a transmission from a remote control and determines if the transmission from the remote control includes a recognizable command code. When the transmission from the remote control is determined to not include a recognizable command code, a signal is generated to notify the remote control and/or user that an unsuccessful transmission was received. More specifically, the system includes a control device that has progranmiing for determining if the transmission from the remote control includes all of the command codes in a sequence of command codes. As described above, the command/state monitor need not be a separate physical device or appliance, rather it may be incorporated into one or more home appliances, or other control centric devices (such as the signaling device for location determination tasks etc.). Additionally, the command/state monitor may be a functional (i.e., software based) element of a control server or network enabled appliance according to the current invention. In general the command/state monitor permits one or more devices, appliances, or components of the home control and automation system to register current appliance and media states for use in many of the features and functions described herein. As such, when implemented in a networked control and automation environment, the command/state monitor may be configured to not only monitor, save and process commands initiated from the remote control, but also system level commands and control data that are issued from appliances, devices, or other system components other than the remote control. In this way the command/state monitor can functions as a central command/state repository, processing center, and arbiter for the whole, or select portions of the networked control environment.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		The command/state monitor may register for events that an appliance or service may issue, thus providing a monitoring service for out of bound situations. In this way the command/state monitor can trigger or key off of a detected appliance or media state to accomplish a variety of control, alert, or automation functions. Triggering states or events may include, for example, temperature out of range in the house/hot tub, disk space limited on PVR, pay per view movie about to expire which has not been watched, oven has reached 350 degrees with food inside for 35 minutes, etc. The command/state monitor (in conjunction with the home control and automation environment) could also perform macro based responses to state/event notifications, allowing for automated escalation or resolution of the problem. The notifications may be filtered based on preset user or system specific settings, or based on dynamic factors such as the location of the remote control, or the current user of the appliance or remote control. The command/state monitor may also be configured to re-direct the notifications based on time of day, day of week, severity, location of the remote control, etc. to a remote location (e.g., a users cell phone, PDA, etc.). Arling at 11:65-12:67. For effecting command and operation of appliances in a networked home control and automation environment, various command and control methods are described such as generic commands, dynamic commands, and complex macro commands. As will be appreciated by those skilled in the art, these commands may be effectuated by a simple remote control, or any remote control, command interface, or control device configured to send command data to a control device (e.g., dedicated remotes, universal remotes, LCD based remotes, PDA's, mobile phones, etc.). It is envisioned that a user will be able to effect command of appliances in one of several ways in a networked home control environment. For instance, a user may use one or more remote control units to send dedicated device specific commands to individual appliances, via an appropriate transport medium (e.g., IR, RF, X-10, SCP commands, etc.) These commands may be in the form of individual commands or may be preprogrammed or user definable macro commands such as described in U.S. Pat. No. 5,959,751. In most cases such remote controls should be capable of either storing large command databases and/or learning command codes for use with particular appliances.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		In the case of a generic remote control, some of the remote control components described above (including the microprocessor, memory, transceiver, etc.) may be configured in a standalone control device (control pod) integrated with the networked home control and automation environment, or may be integrated as a functional elements of another appliance or device of the system (e.g., command/state monitor, signaling device, network enablement device, or any appliance of the system). An exemplary control pod may be configured using the general control device 14 as shown and described in FIG. 3. To effect command and control of appliances in the system, the portable remote control device may be configured as a "generic" remote control with a minimal number of functional components, such that a user need only choose a minimal number of control buttons (or any other control initiator such as voice or gesture based commands) to control a desired activity or function. Thus devices such as mobile phones, PDAs, watches, dedicated remotes, and other simple wireless enabled devices may be configured as a "generic remote" using the system and method of the present invention. For example, a simple generic remote may include several function buttons (i.e. TV, Movie, Music, Lighting, etc) and several associated generic transport buttons (e.g., play, stop, shuffle, power on/off, volume, etc.). By pressing one function button (e.g., Lighting) the control pod may initiate a default action for a device connected to the control system that correspond most closely to the user indicated functions (e.g., turning the lights on if they are currently powered off). Additional button presses on the generic remote may communicate more information to the control pod which may better enable the control pod to determine the desired actions of the user (e.g., pressing "Movie" and "Play" on the generic remote may cause the control pod to power on the TV, DVD player, and Audio Receiver connected to the control pod, and begin playing a DVD). The control pod itself may be set up and configured to control appliances and devices associated with it using a variety of methods, including user based setup from a PC (e.g., using device command codes to set up the control pod such as described in U.S. Pat. No. 6.587,067), dynamic setup through SSDP or other device discovery and setup protocols, device detection and learning methods via barcode reading or RFID tags (as described in co-pending, commonly assigned U.S. patent application entitled "System and Method for Setting Up A Universal Remote Control" (Ser. No. 10/665,642), and commonly assigned U.S. Pat. No. 6,225,938 entitled "Universal Remote Control System with Bar Code Setup.")

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		The generic remote may be configured to communicate with the control pod via any wireless medium (e.g., IR, RF, etc.) and the commands themselves (e.g., activity commands and/or generic transport commands) sent by the remote to the control pod may effect any desired action of the user. For example, as a user walks into a given room or control environment with the remote control, the location of the remote may be determined by the remote or control pod or the system using the remote location determination system and method as described above. The user may then press a "Movie" button on the remote plus a "Play" button, and rather than sending unique IR or RF codes to the particular devices to be controlled, the generic remote is configured to send a simple generic command (for "DVD" and "Play") to the control pod present in the room. Once in receipt of the location data, and generic command data, the control pod effects the desired appliance commands and states using programming, command codes, and an appropriate transmitter on the control pod. As such the actual "generic" remote control operated by the user need only be capable of sending basic commands, and need not contain a library of command codes, complex programming to effect commands of different type or protocol, or a robust transceiver for modulating different signal types or high frequency signals. Arling at 13:1-14:29. In the example above involving location data as the variable data, a particular macro for tuning to a users favorite channel could be automatically reconfigured as a user moved from one entertainment center to another. The initial macro command may have been configured to power on the TV, Audio Receiver, and Cable Box, and then to tune the Cable Box to a particular channel. As the user moves the remote from one entertainment center to another, programming in the remote (or on an associated control pod or other control device) functions to effectively reconfigure the power command for the TV, power command for the Audio Receiver, power command for the Cable Box, and channel tuning command for the Cable Box, in order to ensure that the correct channel is selected and played on each entertainment center for which the macro command is used. In another implementation of the dynamic and complex macro generation concepts of the current invention, a simple channel change and/or volume up/down command may be caused to dynamically change based on the current location of the remote control. Fox example, if a user is listening to a particular song (e.g., an MP3 music file from an associated content server) in the same location as the particular entertainment center playing the music, the remote control (or control pod or other control device) may send IR commands to the Audio Receiver when a

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		"Volume Up" command is issued from remote control. When the user moves to a different room containing a second entertainment center, the same "Volume Up" command may be effectively, dynamically reconfigured (using the new location data) to command the Audio receiver in the first room, for example, via RF transmissions, via a control pod which may complete the volume change by causing an IR command to the first Audio Receiver, etc. Arling at 16:1-16:33. For enabling convenient and secure access to control appliances in the networked control and automation environment from remote locations, an address translation and remote command routing system and method are disclosed. As shown in FIG. 1, remote control 10 may connect to the networked home control environment 100 via a translation and command passing server 500 (shown as an Internet based server). In general, the address translation system and method involves the central registration of a home control environment or particular appliance IP numbers (or similar addressing protocol). In one particular embodiment of the address translation system, appliance functions and even current appliance and media states are registered along with IP numbers or other addresses at the central registry. A server or other device hosting the central registry may perform monitoring and alert functions (based on network or appliance address, functions, and current states) which may be delivered to an associated remote device (such as a wireless PDA, mobile phone, etc.). The Internet based server, home network, and/or particular appliances of the home network may periodically poll one another for purposes of updating the IP numbers or other addresses associated with appliances of the home network. In this way a remote device (such as a wireless PDA or mobile phone) may remain at all times able to communicate commands and other control functions to the home network by checking the central registry for updated dynamic IP numbers or other device addresses. It will also be appreciated that in some instances, the translation and command passing server may be configured such that it supports multiple redundant communication paths into the home, for example both Internet and direct dial, together with automatic routing algorithms to select the best available route based on for example, message/command urgency, data volume to be transferred, etc. In one aspect of the address translation system, the remote device 10 need not request a network or appliance address update from the central server before issuing a command intended for a particular home based appliance or appliances. Rather, the remote device 10 sends a command request along with an associated appliance or command identifier (which serves to sufficiently

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		identify the appliance(s) intended for operation by the user) directly to the translation and command passing server 500 which in turn completes the determination of any updated address for the intended appliances, and issues the intended command(s) to the home network 510 or directly to particular appliances 12. As will be appreciated by those skilled in the art, two way communication between the remote device (such as a remote control, wireless PDA, mobile phone, etc.) and home based appliances 12 may be effected using the current system and method of address translation and command passing such that commands, alerts, updates, and even content (e.g., audio, video, photos, multimedia, etc.) may be passed remotely between the home network (including particular appliances of the home network) and remote device. By way of example, a service running on the address translation and command passing server (or a home network based service) could be configured to proactively notify someone when the temperature in the house was out of the desired range based on address and state updates from the home based thermostat. Likewise, a home based PVR could be controlled remotely using a remote device in conjunction with the address translation and command passing server to record, delete or view a program from a remote location. Alternatively, program recording requests could be entered into a PDA device equipped with a program guide data display, as contemplated in co-pending U.S. patent application Ser. No. 10/287,441 entitled "System and Method for Displaying an Electronic Program Guide and for Remotely Controlling the Recording Functionality of a Device", of like assignee and incorporate herein by reference in its entirety, and subsequently transferred to the home based PVR upon the PDA subsequently establishing connection to any wide area network capable of communicating with the address translation and command passing server 500. Arling at 17:48-18:56. To the extent the foregoing disclosure(s) in Arling do not expressly disclose this limitation, a person of ordinary skill in the art would have determined that Arling inherently included this limitation, or that the limitation would have been obvious in light of Arling alone or in combination with AAPA, the knowledge of one of ordinary skill in the art, or combinations with other references for at least the reasons stated pursuant to P.R. 3-3(b) in the cover pleading and/or in the claim charts.
22[g]	wherein the network communication channel is separate from a wireless	Arling discloses a wireless HUB system wherein the network communication channel is separate from a wireless channel for the short range wireless communication. For example:

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
	channel for the short range wireless communication.	By way of example only, the appliances 12 may include, but are not limited to, televisions, VCRs, DVRs, DVD players, cable converter boxes, amplifiers, CD players, game consoles, home lighting, drapery, fans, HVAC systems, thermostats, personal computers, security systems, network enabled automobiles, etc. According to the exemplary system, some or all of the above devices, appliances, and components are configured to be network enabled and interoperable (e.g., as defined and described in the UPnP and/or HAVi specifications which can be found at the upnp.org Web site and the havi.org Web site respectively, which specifications are incorporated herein by reference in their entirety) such that basic device addressing, accessibility, monitoring, remote management, and other network communication based features are possible in a home control and automation environment. The networked home control and automation environment 100 itself may utilize well known centralized networking methods, ad hoc networking methods (including peer-to-peer networking), powerline or phoneline based networking methods, or a combination of the above (whether wired or wireless) to accomplish the features and goals of the present invention. Additionally, it will be appreciated that particular appliances, devices, and components of the exemplary system may incorporate some or all of the features, functions, and capabilities of other individual devices such that a minimal number of separate physical devices are required in a given home environment to accomplish the goals of the current invention. For instance, devices such as a Media Center PC or network enabled TV (e.g., one compliant with the UpnP and/or HAVi specifications) may include, in additional to standard computing and/or audio/video playback functions, system wide control capabilities, content management and rendering abilities, and location based services. As such it will be appreciated that the various system elements defined and described herein should be considered as functional modules capable of implementation individually or collectively in a single physical device or a software module in a software product, or one or more elements may be implemented in separate physical devices or software modules, without departing from the scope and spirit of the present invention. Arling at 2:61-3:36. To identify home appliances by type and make (and sometimes model) such that the remote control device 10 is adapted to transmit recognizable command codes in the format appropriate for such identified appliances 12, data may be entered into the universal remote control device 10. Since methods for setting up a remote control to control the operation of specific home appliances are well-known, such methods need not be described in greater detail herein. Nevertheless, for additional information pertaining to remote control setup, the reader may turn

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		to U.S. Pat. Nos. 4,959,810, 5,614,906, and 6,225,938. It will also be appreciated that the remote control 10 may be set up to control an appliance 12 by being taught the command codes needed to control such appliance as described in U.S. Pat. No. 4,623,887. To cause the remote control IO to perform an action, the remote control IO is adapted to be responsive to events, such as a sensed user interaction with the key matrix 28, receipt of a transmission, etc. In response to an event, appropriate instructions within the memory 26 may be executed. For example, when a command key is activated on the remote control 10, the remote control IO may retrieve a command code corresponding to the activated command key from memory 26 and transmit the command code to a device in a format recognizable by the device. It will be appreciated that the instructions within the memory 26 can be used not only to cause the transmission of command codes and/or data to the appliances 12 but also to perform local operations, e.g., location based features and functions as described in greater detail below. While not limiting, other local operations that may be performed by the remote control 10 include displaying information/data, favorite channel setup, macro button setup, function key relocation, etc. Examples oflocal operations can be found in U.S. Pat. Nos. 5,481,256, 5,959,751, and 6,014,092. Additional examples of remote controls 10 may be found in commonly owned, U.S. Pat. No. 6,225,938 and U.S. application Ser. Nos. 60/264,767, 09/905,423, 09/905,432, and 09/905,396. Remote control 10 may also include, as needed for a particular application, CCD or other imaging sensors, microphone, and/or touchscreen display for receipt of various types of user input for effecting operations of the remote control. Remote control 10 may also be configured to include appliance, control server, and content server functions, as will be described in greater detail below. For instance, remote control IO may be implemented on a laptop computer, smart panel, tablet PC, wireless enabled PDA, mobile phone, etc which may all include programming to cause remote control 10 to playback music, videos, pictures and the like, monitor appliance feature and state tables for advanced control functions, and include programming for location determination methods. Remote control 10 may thus be viewed as a wireless appliance having functions similar to less portable appliances of the networked control environment, and as such the following discussions and descriptions of the remote controls, and controlling devices in general, should be taken in the broadest sense possible. Arling at 4:3-4:59.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		For enabling frequent feature set and state updates of appliances present in the networked control environment on associated control servers and remote controls, well known multicasting methods for appliance advertising and discovery may be used (e.g., IP Multicasting). In this way appliances, servers, and remote controls may easily monitor and register feature set and state changes on the networked control environment. As described above and shown in FIG. 1, the control and content servers (including control pods, command/state monitors, content renderers, etc.) of the present invention may be separate devices, may be incorporated into one or more of the appliances such that no individual "server devices" are present, etc. Functionally, content centric devices can serve as a repository for digital media files (audio, video, photo, and multimedia content), offer search and cataloging based services, and serve files to one or more appliances for playback. Generally computing based devices such as Media Center PC's, "Content Servers," and "Content Renderers," as defined and described in, for example, the UPnP specification, are examples of content centric devices in a home control and automation environment. Control centric devices generally function to receive, save, process, and transmit media and state data for appliances and devices of the home control and automation environment. Various types of command data (IR, RF, Powerline commands, Phoneline commands, etc.) may be saved by command/state monitors as described in greater detail below. Whether implemented on a single device, or distributed across multiple devices in the home control and automation environment, these control devices are capable of performing logic based operations on saved command and state data for use with appliances, remote control interfaces, and desired user functions. Preset control instructions on control devices may dictate how and when command and state data is captured and processed, or user interaction with an appliance or remote control device may dictate the manner of command and state data capture and processing. Saved and/or processed command and state playback may likewise be effectuated by preset instructions, automated system processes, or user interaction with appliances and devices of the system. Generally, the functions performed by a particular control device will depend on included firmware, software and programming, additional components, and level of integration with other appliances of the system. As such the general control device as shown and described in FIG. 3 may be configured and modified as further described herein to function as a location signaling device, network enablement device, command/state monitor, control pod, network bridge (such as for example an IR, RF, X-10, or Simple Control Protocol (SCP) bridge), or any

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		combination of the above. The control device may also be fully incorporated into any of the appliances of the home environment as a functional element (i.e., as a service or application software running on the appliance). Arling at 5:58-6:24. It will also be appreciated that in cases where control device capability is integrated into an appliance, some or all of the functional elements described above in conjunction with FIG. 3 may be combined with similar elements already present in the appliance for other purposes. It will be appreciated that the abovementioned transmitter 55, receiver 54, and/or input/output means 64 may be used to connect control device 14 to one or more networked appliances, content servers, computers, the Internet, or other devices and appliances of a networked home control environment. As such programming and instructions on the control device may control the operation of other devices and appliances in the system, access content and command data stored or maintained either entirely or in part at a location physically separate from the control device 14 (such as for example in a server or personal computer located elsewhere in the home or remotely via the Internet), and communicate wirelessly with a remote control unit to accomplish command and control features of the current invention. In order to enable location based control and automation functions, a remote control position determination system and method is described in conjunction with the networked control environment of the present invention. In general, the remote control position determination system includes one or more location signaling devices within multiple control environments (or control zones), each control environment including home appliances operable by the remote control. In one exemplary system of the remote control position determination system, a location signaling device (i.e., one implementation of control device 14) is placed within each control environment in order to send one or more signals to the remote control for location determination operations. Various methods for determining the location of the remote control relative to the various control environments and zones, or similarly determining the proximity of various home appliances to the remote control are disclosed, as well as methods for using determined location information to dynamically reconfigure default command set and/or macro commands on the remote control to control a desired appliance or multi-appliance function. An exemplary remote control position determination system and method is described in greater detail in U.S. provisional patent entitled “System And Method for Controlling Device Location

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Determination" (Ser. No. 60/517,588) which is owned by a common assignee and incorporated herein by reference in its entirety. By implementing a remote control location determination system with the networked home control environment of the present invention, many additional functions and features can be accomplished. For instance, a remote control may determine its location based on appliance signaling and unique identifiers, then the location data for the remote control may be formatted and broadcast as a data transmission (i.e., XML format or in a URI as described below) to all appliances in the environment. In this way, specific location based services and functions may be performed by any and all devices in the networked environment on an ongoing basis based on the broadcast remote control location state data. It will be appreciated that the determined state data may be published as a device feature or state of the remote control (or by any other appliance in the system having access to remote location data) using for example Simple Service Discovery Protocol (SSDP), XML, or other methods as described in the UPnP specification. It may also be possible to modify the URI or other appliance identifier such that the broadcast and/or discoverable address contains specific information (e.g., appliance location, device state, services available, etc.) relating to the appliance in addition to the device address. By way of example only, the device address for a specific appliance may be formatted as follows to indicate additional information in conjunction with the address: http://Address/Location/StateData/ServicesData, where "Address" is the network address of the device, "Location" is the physical location relating to the environment the device is in, "StateData" includes one or more indications of the device state, and "ServicesData" includes an indication of the services offered by the device. Other methods of publishing determined location state data are possible given the disclosure and such methods are well within the routine skill of a programmer skilled in the art. Based on the present location of the remote control in an environment, only those appliance within a specified proximity to the remote control may be caused to report their function and state data, or commands transmitted from the remote control may be prioritized for appliances that are determined to be in close proximity to the remote control at any given time. Dynamic and/or complex macro commands (as described in greater detail below) may be configured to cause appliance states to change any time a particular location is reported by the remote control (e.g., lighting fixtures may be configured to receive location data based on the remote control location determination and modify their power state or brightness level continuously based on remote control location).

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		Arling at 6:65-8:20. It may be advantageous in such a scenario to initiate a location determination request from one or more of the appliances or control devices within the home network, rather than from the remote control. The request from the appliances or control devices may be in the form of a signal response (based on a command issued from another appliance or control server rather than a signal request from the remote control) which provides location data to the remote. Once in receipt of the location data the remote control may make a position determination and broadcast its position data to all networked appliances. Arling at 8:33-8:43. In a basic embodiment, the network enablement device (such as may be configured using the control device 14 shown in FIG. 3) includes a consumer IR (CIR) to network bridge such that commands to and from the legacy appliance to which the network enablement device is connected may be saved, monitored, processed, etc. In addition to IR blasting capability, the network enablement device is able to emulate multiple networked devices (e.g., UPnP compliant devices) that encapsulate the functionality of legacy consumer electronics devices that are only controllable via standard CIR commands. For example, if a network enablement device is configured in conjunction with a legacy DVD player, then the network enablement device (including a CIR bridge) could announce and emulate a virtual networked media renderer device, supporting, for example AV transport, rendering control, and connection manager services (e.g., as defined and described in the UPnP specification). The network enablement device could also serve to provide remote IO interfaces for each simulated device (e.g., as also described in the UPnP specification). Arling at 9:13-9:32. In order to accomplish the described control features and functions, especially those relating to saving and recalling media states, dynamic macros, and generic remote commands, a system and method for monitoring and saving media and devices states may be incorporated with the home control and automation system of the current invention. Co-pending U.S. applications entitled “System and Method for Monitoring Remote Control Transmissions,” (Ser. No. 10/603,839), and “System and Method for Monitoring Remote Control Transmissions,” (Ser.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		No. 10/6665,650), both owned by a common assignee and fully incorporated by reference herein, describe a system and associated methods for such monitoring of macro commands and appliance states. Generally, the command/state monitor receives a transmission from a remote control and determines if the transmission from the remote control includes a recognizable command code. When the transmission from the remote control is determined to not include a recognizable command code, a signal is generated to notify the remote control and/or user that an unsuccessful transmission was received. More specifically, the system includes a control device that has progranmiing for determining if the transmission from the remote control includes all of the command codes in a sequence of command codes. As described above, the command/state monitor need not be a separate physical device or appliance, rather it may be incorporated into one or more home appliances, or other control centric devices (such as the signaling device for location determination tasks etc.). Additionally, the command/state monitor may be a functional (i.e., software based) element of a control server or network enabled appliance according to the current invention. In general the command/state monitor permits one or more devices, appliances, or components of the home control and automation system to register current appliance and media states for use in many of the features and functions described herein. As such, when implemented in a networked control and automation environment, the command/state monitor may be configured to not only monitor, save and process commands initiated from the remote control, but also system level commands and control data that are issued from appliances, devices, or other system components other than the remote control. In this way the command/state monitor can functions as a central command/state repository, processing center, and arbiter for the whole, or select portions of the networked control environment. The command/state monitor may register for events that an appliance or service may issue, thus providing a monitoring service for out of bound situations. In this way the command/state monitor can trigger or key off of a detected appliance or media state to accomplish a variety of control, alert, or automation functions. Triggering states or events may include, for example, temperature out of range in the house/hot tub, disk space limited on PVR, pay per view movie about to expire which has not been watched, oven has reached 350 degrees with food inside for 35 minutes, etc.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		The command/state monitor (in conjunction with the home control and automation environment) could also perform macro based responses to state/event notifications, allowing for automated escalation or resolution of the problem. The notifications may be filtered based on preset user or system specific settings, or based on dynamic factors such as the location of the remote control, or the current user of the appliance or remote control. The command/state monitor may also be configured to re-direct the notifications based on time of day, day of week, severity, location of the remote control, etc. to a remote location (e.g., a users cell phone, PDA, etc.). Arling at 11:65-12:67. For effecting command and operation of appliances in a networked home control and automation environment, various command and control methods are described such as generic commands, dynamic commands, and complex macro commands. As will be appreciated by those skilled in the art, these commands may be effectuated by a simple remote control, or any remote control, command interface, or control device configured to send command data to a control device (e.g., dedicated remotes, universal remotes, LCD based remotes, PDA's, mobile phones, etc.). It is envisioned that a user will be able to effect command of appliances in one of several ways in a networked home control environment. For instance, a user may use one or more remote control units to send dedicated device specific commands to individual appliances, via an appropriate transport medium (e.g., IR, RF, X-10, SCP commands, etc.) These commands may be in the form of individual commands or may be preprogrammed or user definable macro commands such as described in U.S. Pat. No. 5,959,751. In most cases such remote controls should be capable of either storing large command databases and/or learning command codes for use with particular appliances. In the case of a generic remote control, some of the remote control components described above (including the microprocessor, memory, transceiver, etc.) may be configured in a standalone control device (control pod) integrated with the networked home control and automation environment, or may be integrated as a functional elements of another appliance or device of the system (e.g., command/state monitor, signaling device, network enablement device, or any appliance of the system). An exemplary control pod may be configured using the general control device 14 as shown and described in FIG. 3.

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		To effect command and control of appliances in the system, the portable remote control device may be configured as a "generic" remote control with a minimal number of functional components, such that a user need only choose a minimal number of control buttons (or any other control initiator such as voice or gesture based commands) to control a desired activity or function. Thus devices such as mobile phones, PDAs, watches, dedicated remotes, and other simple wireless enabled devices may be configured as a "generic remote" using the system and method of the present invention. For example, a simple generic remote may include several function buttons (i.e. TV, Movie, Music, Lighting, etc) and several associated generic transport buttons (e.g., play, stop, shuffle, power on/off, volume, etc.). By pressing one function button (e.g., Lighting) the control pod may initiate a default action for a device connected to the control system that correspond most closely to the user indicated functions (e.g., turning the lights on if they are currently powered off). Additional button presses on the generic remote may communicate more information to the control pod which may better enable the control pod to determine the desired actions of the user (e.g., pressing "Movie" and "Play" on the generic remote may cause the control pod to power on the TV, DVD player, and Audio Receiver connected to the control pod, and begin playing a DVD). The control pod itself may be set up and configured to control appliances and devices associated with it using a variety of methods, including user based setup from a PC (e.g., using device command codes to set up the control pod such as described in U.S. Pat. No. 6.587,067), dynamic setup through SSDP or other device discovery and setup protocols, device detection and learning methods via barcode reading or RFID tags (as described in co-pending, commonly assigned U.S. patent application entitled "System and Method for Setting Up A Universal Remote Control" (Ser. No. 10/665,642), and commonly assigned U.S. Pat. No. 6,225,938 entitled "Universal Remote Control System with Bar Code Setup.") The generic remote may be configured to communicate with the control pod via any wireless medium (e.g., IR, RF, etc.) and the commands themselves (e.g., activity commands and/or generic transport commands) sent by the remote to the control pod may effect any desired action of the user. For example, as a user walks into a given room or control environment with the remote control, the location of the remote may be determined by the remote or control pod or the system using the remote location determination system and method as described above. The user may then press a "Movie" button on the remote plus a "Play" button, and rather than sending unique IR or RF codes to the particular devices to be controlled, the generic remote is configured to send a simple generic command (for "DVD" and "Play") to the control pod

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		present in the room. Once in receipt of the location data, and generic command data, the control pod effects the desired appliance commands and states using programming, command codes, and an appropriate transmitter on the control pod. As such the actual "generic" remote control operated by the user need only be capable of sending basic commands, and need not contain a library of command codes, complex programming to effect commands of different type or protocol, or a robust transceiver for modulating different signal types or high frequency signals. Arling at 13:1-14:29. Dynamic macro commands generally involve the application of variable data to a preconfigured macro, or system automated command event. For example, a remote control, control pod, or other control device may include preconfigured (i.e., user defined, predefined, or system generated) macro commands to effect advanced command and control operations in the home control environment. When implemented with the location determination system and method, however, some or all of the preconfigured macro commands may not function to bring about the desired result on a particular set of appliances, for instance when a user changes rooms or locations the commands may not control the appliances properly. Additionally, complex macro commands provide for the configuration of macro commands involving multiple command protocols (e.g., IR, RF, X-10, SCP, etc). For instance, a "Sleep" macro command for a given home control environment may involve sending IR commands to power off certain legacy appliances, RF commands to power off other appliances, and X-10 or SCP based commands to power off lights, close drapes, etc. To this end, a method of generating dynamic macro commands (which may also include generating and managing complex macro commands) is disclosed. Arling at 15:35-15:57. In the example above involving location data as the variable data, a particular macro for tuning to a users favorite channel could be automatically reconfigured as a user moved from one entertainment center to another. The initial macro command may have been configured to power on the TV, Audio Receiver, and Cable Box, and then to tune the Cable Box to a particular channel. As the user moves the remote from one entertainment center to another, programming in the remote (or on an associated control pod or other control device) functions to effectively reconfigure the power command for the TV, power command for the Audio Receiver, power command for the Cable Box, and channel tuning command for the Cable Box,

Invalidity of U.S. Patent No. 9,912,983 in view of Arling
Exhibit FF-1

Claim	Claim Language	Exemplary Disclosures in Arling
		in order to ensure that the correct channel is selected and played on each entertainment center for which the macro command is used. In another implementation of the dynamic and complex macro generation concepts of the current invention, a simple channel change and/or volume up/down command may be caused to dynamically change based on the current location of the remote control. Fox example, if a user is listening to a particular song (e.g., an MP3 music file from an associated content server) in the same location as the particular entertainment center playing the music, the remote control (or control pod or other control device) may send IR commands to the Audio Receiver when a "Volume Up" command is issued from remote control. When the user moves to a different room containing a second entertainment center, the same "Volume Up" command may be effectively, dynamically reconfigured (using the new location data) to command the Audio receiver in the first room, for example, via RF transmissions, via a control pod which may complete the volume change by causing an IR command to the first Audio Receiver, etc. Arling at 16:1-16:33. For enabling convenient and secure access to control appliances in the networked control and automation environment from remote locations, an address translation and remote command routing system and method are disclosed. As shown in FIG. 1, remote control 10 may connect to the networked home control environment 100 via a translation and command passing server 500 (shown as an Internet based server). In general, the address translation system and method involves the central registration of a home control environment or particular appliance IP numbers (or similar addressing protocol). In one particular embodiment of the address translation system, appliance functions and even current appliance and media states are registered along with IP numbers or other addresses at the central registry. A server or other device hosting the central registry may perform monitoring and alert functions (based on network or appliance address, functions, and current states) which may be delivered to an associated remote device (such as a wireless PDA, mobile phone, etc.). The Internet based server, home network, and/or particular appliances of the home network may periodically poll one another for purposes of updating the IP numbers or other addresses associated with appliances of the home network. In this way a remote device (such as a wireless PDA or mobile phone) may remain at all times able to communicate commands and other control functions to the home network by checking the central registry for updated dynamic IP numbers or other device addresses. It will also be appreciated that in some instances, the translation and